Amber Waves

contents

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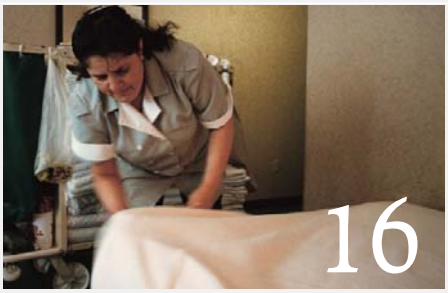

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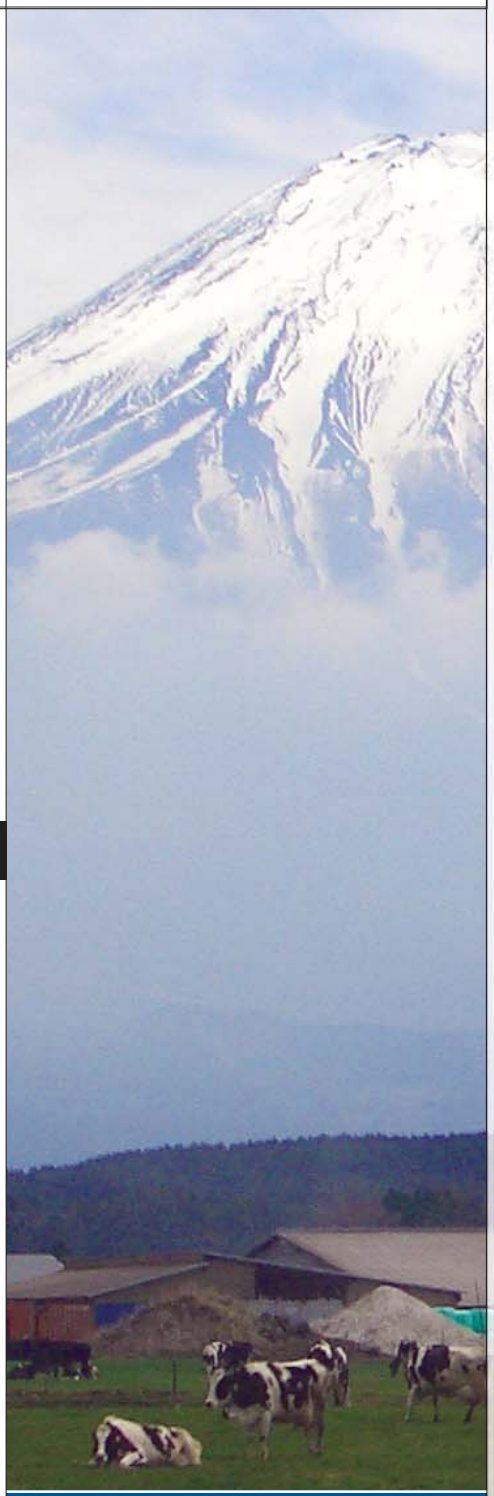


What Protects Japan's Dairy Industry?

Prices for milk and dairy products in Japan at all levels, from farm to retail, are much higher than U.S. prices. Retail prices of fluid milk in Japan, for example, are more than double U.S. prices, and butter prices are almost twice as high as U.S. prices. Japan's high prices persist because of geographic factors and government policies.

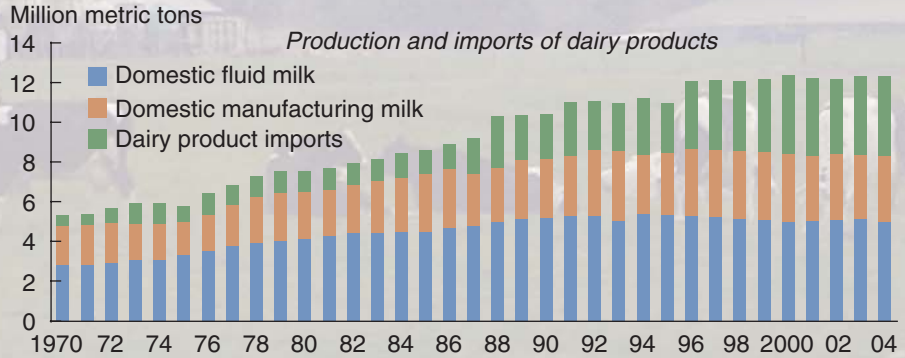
Japanese dairy farms are smaller in area than U.S. dairy farms, and milk producers in Japan must import grain and fodder from distant sources. These factors translate to high costs for Japanese producers. Japan's location also makes it difficult to ship fresh, fluid milk to Japan from lower cost suppliers in Australia, New Zealand, or the Western Hemisphere. Thus, over 40 percent of Japan's dairy product consumption depends on local production.

Manufacturing milk, used to produce butter, skim milk powder, and cheese, can be replaced cost effectively by imports of the final products. The cheese market illustrates the potential importance of Japan in global dairy trade. Japan is the second-largest cheese importer in the world, behind only the United States. Japan's tariffs on cheese range from 22 to 40 percent, and Japan does not use tariff-rate quotas (TRQs) to limit cheese imports.

For dairy products other than cheese, Japan's government uses TRQs to support the production of manufacturing milk. Tariffs on imports outside the quotas are so high that they effectively eliminate trade. In addition, the government provides a direct subsidy for each liter of manufacturing milk produced within Japan's production quota. Together, the higher prices supported by the TRQs and subsidy payments provide about $1.8 billion in support to manufacturing milk production.

If Japan were to eliminate its TRQs and subsidies, Japanese consumers would benefit from lower prices for dairy products. Much of Japan's manufacturing milk production would be replaced by imports of butter and milk powder, providing new markets for producers of manufacturing milk in lower cost regions of the world. Even if that were to happen, however, Japan's large consumption of fresh, fluid milk would continue to support a large dairy industry in Japan.

Japan's support goes to milk for manufacturing uses



Note: Imports are dairy products, converted to a fluid-milk basis.
Source: Compiled by USDA's Economic Research Service from Food Balance Sheet from the Food and Agriculture Organization of the United Nations, *Statistical Yearbook of Agriculture, Forestry, and Fisheries*, various issues, and USDA, PSD database.

Photo courtesy of 74 CES/CEV (Environmental Flight), Yokota AB, Japan

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This finding is drawn from . . .

Dairy Policies in Japan, by Kakuyu Obara, John Dyck, and Jim Stout, LDP-M-134-01, USDA, Economic Research Service, August 2005, available at: www.ers.usda.gov/publications/ldp/aug05/ldpm13401/

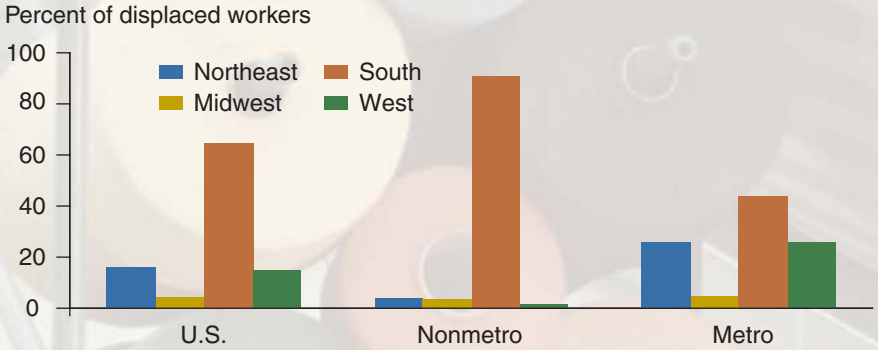
Textile Trade Liberalization Brings Difficulties to Some Rural Communities

On January 1, 2005, the quotas that governed world textile and apparel trade for decades were removed, the culmination of a 10-year global liberalization process under the aegis of the World Trade Organization (WTO). With this relaxation of import protection, U.S. clothing imports from Asia have risen and clothing prices have fallen. While both rural and urban communities across the United States have benefited from lower clothing prices, they have also felt the sting of a large number of textile plant closings. U.S. textile and apparel employment has fallen by more than 900,000 jobs since 1994, nearly a 60-percent decline. Nonmetro counties in the Southeast have taken the brunt of the losses, with some rural communities hit especially hard.

After the expiration of the 1974 Multifiber Arrangement, WTO members agreed to eliminate textile and apparel trade quotas in four stages between 1995 and 2005 and to expand the import quantities permitted by quotas in the years leading up to their removal (see "The World Bids Farewell to the Multifiber Arrangement," in *Amber Waves*, February 2006). In the United States, the quota removal was "backloaded," that is, 80 percent of the effective quotas—quotas that were limiting imports from major Asian producers—remained in place through 2004. Despite that measure, U.S. textile and apparel employment declined steadily over the 10-year period, in large part as a result of a rise in nonquota imports from Mexico and the Caribbean Basin.

These changes have been difficult for many U.S. textile and apparel workers. Compared with displaced workers in other industries, textile and apparel workers were more likely to drop out of the labor force, and those who found new jobs took longer to do so, with three-fourths earning less in their new jobs. Rural areas have been disproportionately affected by the job losses—45 percent of all displaced textile and apparel workers between 1997 and 2003 were nonmetro residents, more than double the nonmetro population's share of the U.S. labor force. Rural communities, as well as workers, have been hurt by these plant closings, as the losses of these long-established businesses can take a large bite out of an area's tax base. With many of these communities already operating with low budgets, those faced with plant closures may be hard-pressed to maintain public service levels.

Displaced textile and apparel workers overwhelmingly located in the nonmetro South, 1997-2003



Source: Estimates by USDA, Economic Research Service, from 2000, 2002, and 2004 Displaced Worker Survey Supplements of the Current Population Survey.

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This finding is drawn from . . .

The U.S. Textile and Apparel Industries and Rural America chapter of ERS Briefing Room on Cotton, www.ers.usda.gov/briefing/cotton/ustextileapparel.htm

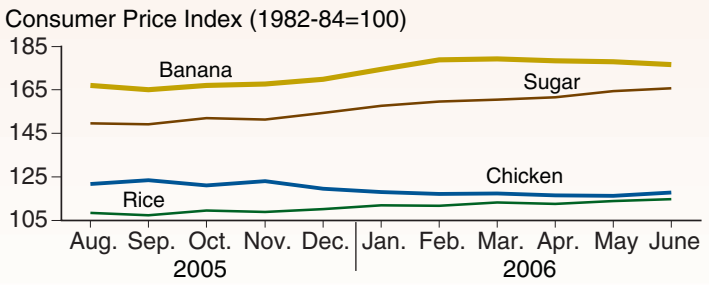
Despite Katrina, Overall Food Prices Stable

One year ago, Hurricane Katrina slammed into New Orleans and the surrounding Gulf Coast areas. The resulting loss of electricity, lack of fuel, and damage to roads and port facilities temporarily interrupted the movement and processing of agricultural products and raised questions about whether consumers in that region would face steep increases in food prices. But, despite some production cost increases and supply disruptions, overall food prices in the region most affected by Katrina rose at rates similar to those in other regions. Since August 2005, retail food prices are up 1.9 percent in the U.S., with the Northeast region experiencing the largest increase, 2.9 percent. Interestingly, the South, where damage from the storm was the greatest, experienced a 1.8-percent increase in food prices, only slightly higher than the 1.4- and 1.7-percent price increases in the West and Midwest, respectively.

While overall prices have been stable over the past year, certain products were more vulnerable to Katrina's destruction. Since 85 percent of U.S. sugarcane production, 17 percent of broiler production, and 14 percent of rice production occurs in the portions of Alabama, Florida, Louisiana, and Mississippi most affected by Katrina, these products were expected to be impacted the most. In addition, since the majority of U.S. banana imports typically come into the Port of New Orleans from Central and South America, a storm-induced supply disruption might be expected to increase retail banana prices.

Nationally, retail sugar prices have, in fact, had one of the largest price increases—up 10.8 percent—between August 2005 and June 2006, while banana and rice prices were up 5.7 and 5.9 percent, respectively, over the period. Chicken prices, however, bucked the trend, dropping 3.4 percent. This is not surprising, as other factors impacted the market for chicken, including depressed global demand for some poultry products due to avian influenza outbreaks in Europe and Asia. This illustrates that other factors also influence retail food prices and may have contributed to the observed price changes.

Hurricane Katrina contributed to higher sugar, rice, and banana prices



Source: Bureau of Labor Statistics, Consumer Price Index (CPI).

Food Stamp Program Boosts Farm Income and Jobs

While the primary goal of the Food Stamp Program is to help low-income households buy the foods they need for a nutritionally adequate diet, the program also serves another purpose: it increases demand for food products and farm commodities and increases cash receipts for these sectors. ERS researchers estimate that the additional food purchases resulting from each $1 billion of program benefits redeemed generates $97 million in farm cash receipts, which translates into 950 farm jobs and $32 million of income to farmers and hired farmworkers.

In fiscal year 2005, USDA provided $28.6 billion worth of food stamps to needy Americans. When households redeem food stamp benefits at local grocery stores, their food purchases have an impact on production, income, and employment throughout the food system and other sectors of the economy. The magnitude of the impact on agriculture depends on the amount of additional demand for food generated by the program and on the share of the additional food expenditures that goes to the farmer.

Though households may use food stamps only to purchase food for home consumption, the benefits enable them to shift cash otherwise budgeted for food to nonfood expenditures, such as clothing, rent, or child care. Consequently, the additional food expenditure is less than the extra dollar increase in the value of food stamp benefits. An estimated 26 cents of every food stamp dollar goes to additional food demand. ERS used this estimate in a model of the U.S. economy to calculate the effect of additional food expenditures on the farm sector. This model includes the linkages among producers and consumers, as well as the inter-industry linkages among producers. Food stamp participants were assumed to use their program benefits to purchase foods similar to those purchased by low-income households, as determined through surveys on household food expenditures.

Photos: Comstock

The potential for longer lasting and more widely felt price increases from Katrina comes from increases in energy costs. Katrina destroyed oil platforms in the Gulf and disrupted oil delivery and refining, causing the prices of gasoline and other petroleum products to increase sharply.

Higher prices for gasoline and diesel fuel increase farm production costs, but with farm value accounting for about one-fifth of retail food prices, higher farm prices pass through to retail at only a fraction of their increase. Higher energy prices also increase the cost of processing, manufacturing, and transporting foods. However, direct energy and transportation costs account for only 7.5 percent of the overall average retail food dollar.

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For more information . . .

The ERS Briefing Room on Food CPI, Prices, and Expenditures: www.ers.usda. gov/briefing/cpifoodandexpenditures/

On average, each dollar spent on food by low-income shoppers generates 37.3 cents of farm cash receipts, though the magnitude varies by food items. About 55 percent of the cash receipts goes to producers of dairy, poultry, and other livestock, while the remaining 45 percent goes to producers of crops, including feed for animals.

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This finding is drawn from . . .

Tracing the Impacts of Food Assistance Programs on Agriculture and Consumers: A Computable General Equilibrium Model, by Kenneth Hanson, Elise Golan, Stephen Vogel, and Jennifer Olmsted, FANRR-18, USDA, Economic Research Service, May 2002, available at: www.ers.usda.gov/publications/fanrr18/

FNS Southeast Regional Office, USDA

Emergency Food Assistance Reaches Hurricane Victims

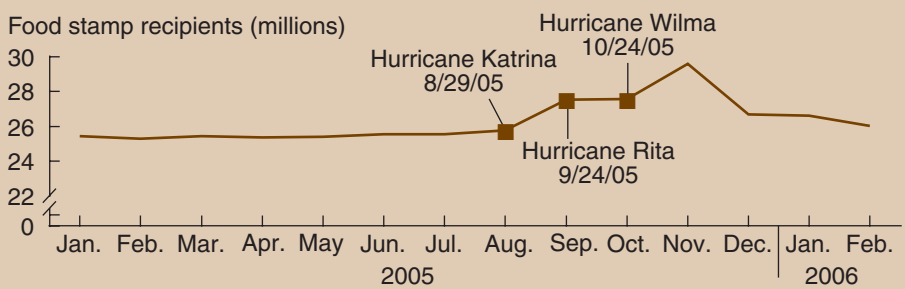
Food Stamp Program participation spiked in November 2005 at 29.6 million people, up from 25.8 million 3 months earlier. By January 2006, the number of Americans receiving food stamps had dropped to 26.6 million. The sudden jump in caseloads reflects USDA's efforts in getting food stamps to people in need in the wake of the destruction wrought by Hurricanes Katrina, Rita, and Wilma last fall. This additional food stamp spending also represents an injection of funds into businesses rebuilding after the storms.

When a disaster strikes, people may need emergency food assistance. USDA's Food and Nutrition Service (FNS) delivers this assistance in two ways. Initially, emergency food is provided to shelters, other mass feeding sites, and directly to households. In the weeks following Hurricane Katrina, 20 million pounds of FNS-funded food was delivered to Louisiana, Texas, Alabama, and Mississippi. State food stamp agencies implemented their disaster plans and distributed their warehoused food supplies.

Once grocery stores and other retailers in the affected areas are operating again, FNS issues emergency food stamps through the Disaster Food Stamp Program, a program funded by the Federal Government but administered by the States. Under the program, the Secretary of Agriculture establishes temporary eligibility standards for households who are victims of the disaster. Benefits are provided to households who suddenly need food assistance because of disaster damage to their homes, expenses related to protecting their homes, lost income, or lack of access to bank accounts or other resources. Eligibility verification and reporting requirements are temporarily relaxed. The Secretary can also provide emergency food stamps to existing food stamp households whose food was destroyed in a disaster. Flexibility in program regulations allows States to adjust to the needs of the circumstance. Between September and December 2005, 1.6 million new households received food stamp benefits through the Disaster Food Stamp Program. An additional 676,000 households had benefits replaced due to destroyed food. Benefits issued amounted to $900 million.

As recipients use the food stamps to purchase food from local retailers, the benefits become revenues for retailers, contributing to the economic recovery of the community. The food spending brings people back to work in both the stores and the local businesses that support the stores, such as wholesalers and delivery companies. This flow of resources helps rebuild businesses and communities.

Disaster program enrollment leads to spike in food stamp caseload



Source: USDA, Food and Nutrition Service.

Kenneth Hanson, khanson@ers.usda.gov

This finding is drawn from . . .

The Food Assistance Landscape: March 2006, by Victor Oliveira, EIB 6-2, USDA, Economic Research Service, March 2006, available at: www.ers.usda.gov/publications/eib6-2/

Adoption of Genetically Engineered Crops Continues To Increase

Adoption of genetically engineered (GE) soybeans, cotton, and corn with herbicide tolerance (HT) and/or insect resistance (Bt) traits by U.S. farmers has been rapid over the 11-year period following commercial introduction. HT crops survive certain potent herbicides, enabling growers who adopt these varieties to control pervasive weeds more effectively. In the U.S., HT soybean adoption has expanded more rapidly and widely than other GE crops, reaching 89 percent of soybean acreage in 2006. The second most adopted variety, HT cotton, accounted for 65 percent of cotton acreage.

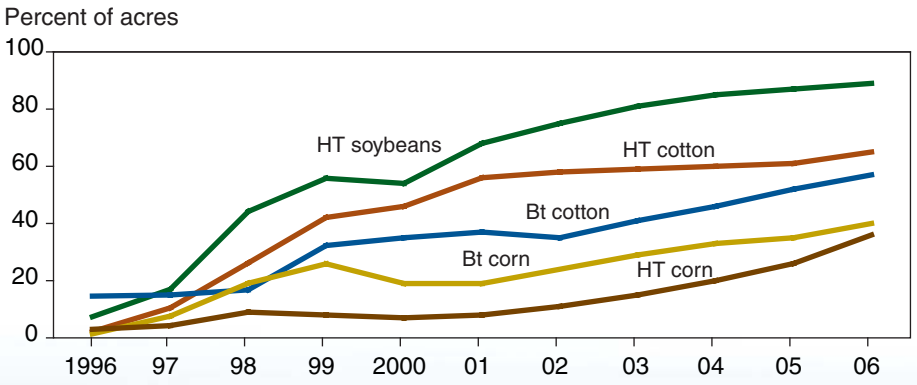
Bt crops contain a gene from the soil bacterium *Bacillus thuringiensis* that produces a protein toxic to specific insects. Bt seed use is concentrated in areas with high levels of infestations of targeted pests, so acreage shares for Bt corn and cotton are lower than for HT soybeans and cotton and vary widely across States. Bt cotton, which controls tobacco budworm, bollworm, and pink bollworm, was planted on 57 percent of U.S. cotton acreage in 2006—ranging from 17 percent in California to 83 percent in Louisiana. The U.S. acreage share of Bt corn leveled off during 1999-2002 because farmers with the greatest need to protect against the European corn borer had already adopted Bt corn. Adoption of Bt corn has since expanded, reaching 40 percent of corn acreage in 2006, following the introduction of a Bt variety to control corn rootworm.

According to ERS research, U.S. farmers are realizing tangible economic benefits from adopting these GE crops, such as higher yields, lower pesticide costs, and savings in management time. The impacts of GE crops vary with the crop, technology, pest infestation levels, and other factors.

In addition to corn, soybeans and cotton, U.S. farmers have adopted HT canola and virus-resistant papaya and squash. Moreover, other GE traits are in various stages of development. For example, USDA's Animal and Plant Health Inspection Service has approved 1,256 field testing applications for crops with resistance to virus, 712 for resistance to fungus, 1,292 for improved agronomic properties (such as resistance to cold, drought, and salinity), and 2,687 for improved product quality (such as crops that increase protein and oil content, and crops with added vitamins and iron).

Worldwide, an estimated 220 million acres of biotech crops with HT and/or Bt traits were planted in 21 countries in 2005. The U.S. accounts for about 55 percent of this amount, and six countries combined (Argentina, Canada, Brazil, China, Paraguay, and India) account for nearly 43 percent.

Adoption of genetically engineered crops grows steadily in the U.S.



Note: Data for each crop category include varieties with both HT and Bt (stacked) traits.
Source: USDA surveys, www.ers.usda.gov/data/biotechcrops/

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For more information . . .

ERS data on adoption of GE crops in the U.S., available at: www.ers.usda.gov/data/biotechcrops/

The First Decade of Genetically Engineered Crops in the United States, by Jorge Fernandez-Cornejo and Margriet Caswell, EIB-11, USDA, Economic Research Service, April 2006, available at: www.ers.usda.gov/publications/eib11/

Lynn Betts, USDA/NRCS

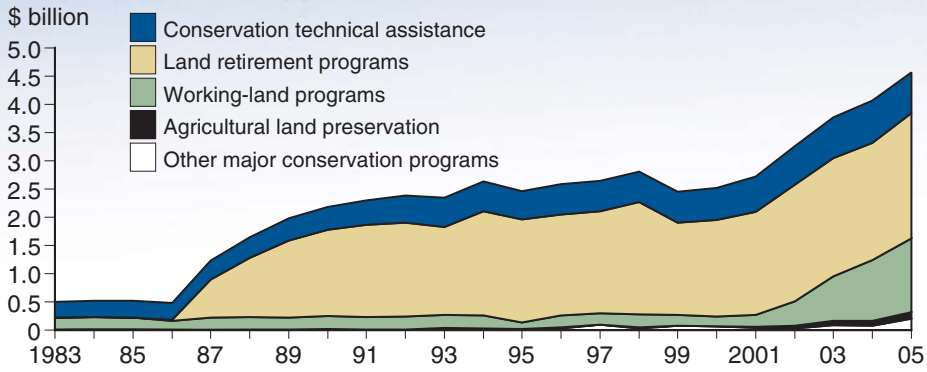
Indicators Highlight Links Between Agricultural Resources and the Environment

Gary Kramer, USDA/NRCS

Agricultural production both depends on and influences a wide range of natural and other resources. These resources include land, water, and genetic material, as well as knowledge, production technologies, and management skills. The links between agricultural resources and the environment depend critically on the decisions made by the diverse operators of the Nation's 2.1 million farms. Farm operators' decisions are shaped in turn by market conditions, public policies, and the specific characteristics of individual farms and households. When making production decisions, farm operators have clear incentives to consider the impacts on their own well-being and that of their households, but weaker incentives to consider impacts that occur off-site or farther away.

The difference in incentives raises ongoing challenges in managing the Nation's agricultural resources and motivates ongoing efforts to balance public and private goals. For example, voluntary programs designed to improve environmental quality often rely on increasing farmers' incentives to adopt practices that have off-site (and often distant) benefits. USDA expenditures on conservation programs have risen nearly tenfold over the past two decades, and their composition and emphases continue to evolve in response to changing conditions and priorities. Concise and accurate information on agricultural resources and the environment can help public and private decisionmakers better understand the complex interactions between public policies, economic conditions, farming practices, conservation, and the environment.

Trends in USDA conservation expenditures, 1983-2005



Source: Analysis by USDA, Economic Research Service of data from USDA, Office of Budget and Program Analysis.

ERS publishes research reports, databases, and other materials on a variety of specific topics relating to agricultural resource use and the environment. The 2006 edition of *Agricultural Resources and Environmental Indicators* draws on these detailed sources to provide a comprehensive overview of patterns and trends in land, water, biological resources, management skills, and commercial inputs used in the agricultural sector. *AREI 2006* also describes public policies and programs as well as economic factors that affect resource use, conservation, and environmental quality in agriculture. Twenty-eight chapters synthesize, update, and provide links to more detailed information available in ERS reports, databases, and briefing rooms on the ERS website.

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This finding is drawn from . . .

Agricultural Resources and Environmental Indicators, 2006 Edition, edited by Keith Wiebe and Noel Gollehon, EIB-16, USDA, Economic Research Service, July 2006, available at: www.ers.usda.gov/publications/arei/eib16/

FINDINGS

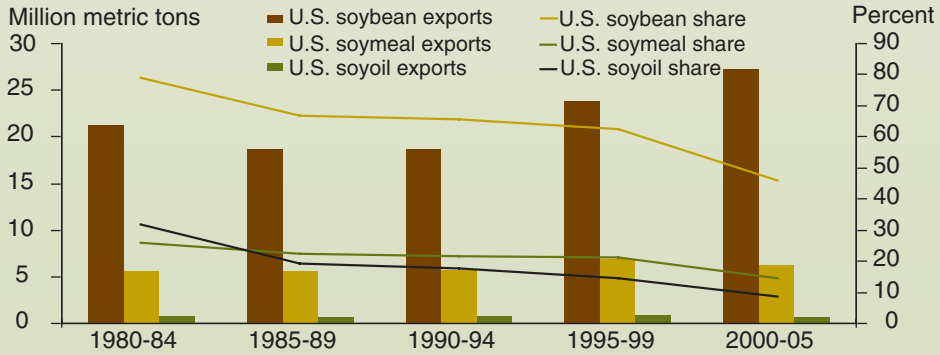
International Trade, Biofuel Initiatives Reshaping the Soybean Sector

Keith Weller, USDA/ARS

Increased domestic and global demand over the past decade continues to pull U.S. soybean production steadily upward. Rising demand has prompted producers to shift acres from wheat to soybeans, capitalizing on the additional planting flexibility provided since the 1996 Farm Act. Expanding use of corn and soybeans for domestic biofuel production and global market trends are likely to influence the future direction of the soybean sector.

A key concern among U.S. soybean producers is export competitiveness. Trade has been constrained by slow import growth in traditionally strong markets for U.S. soybeans, such as the European Union (EU), and intensifying export competition from South American producers. Although as much as 40 percent of U.S. soybean production is exported, the U.S. share of the global soybean export market declined from 60 percent in crop year 1990 to 37 percent in crop year 2005. The main bright spot for domestic producers is soaring demand in China, which has now surpassed the EU as the world's largest soybean import market.

U.S. export volumes for soybeans and soybean products edge higher, but market shares decline



Source: USDA, Foreign Agricultural Service, Production, Supply, and Distribution database.

With the recent escalation of energy prices, the development of renewable crop-based fuels is a front-burner issue. In 2005, the U.S. Energy Policy Act set a requirement for the annual use of 7.5 billion gallons of renewable fuels by 2012. The Federal Government also introduced a tax incentive for biodiesel production. Although ethanol derived from corn will fulfill a majority of the renewable fuels mandate, these policies will have both direct and indirect effects on the soybean sector. Rising demand for corn to produce ethanol will likely draw cropland away from soybeans, and soybean producers will be able to sustain production only by raising yields. However, producers throughout the highest yielding areas of the Corn Belt may be lengthening the period between soybean crops from every other season to once every 3 years. This practice may make it harder to sustain the long-term growth of average soybean yields as lower yielding regions begin to account for a greater proportion of total acreage. New crop diseases, such as soybean rust, also pose risks to yields.

While lower soybean acreage stemming from shifts to corn may dampen export competitiveness, it should support prices. The emerging demand for biodiesel may also help buoy prices, since U.S.-produced biodiesel is derived primarily from soybean oil. However, many infrastructure and logistical issues remain before biodiesel fuel use becomes widespread in the United States.

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This finding is drawn from . . .

Soybean Backgrounder, by Mark Ash, Janet Livezey, and Erik Dohlman, OCS-2006-01, USDA, Economic Research Service, April 2006, available at: www.ers.usda.gov/publications/ocs/apr06/ocs200601/

Fruit and Vegetables in the Limelight

Comstock

Several hot issues—immigration reform, diet quality and rising rates of obesity, and U.S. agricultural trade—and how they play out may have significant effects on the fruit and vegetable industries. The industries are a key cog in U.S. agriculture, accounting for nearly a third of U.S. crop cash receipts and a fifth of U.S. agricultural exports in 2002-04. With increasing evidence of the nutritional benefits from consuming fruit and vegetables, the produce industry is also recognized as being pivotal to the health and well-being of consumers.

Fruit and vegetable growers are closely following the current debate on immigration reform. They are particularly concerned about the effects of any new legislation on labor availability. According to the U.S. Department of Labor's latest (2001/02) National Agricultural Workers Survey, fruit, tree nut, and vegetable farms accounted for two-thirds of all hired crop workers in the United States. With an undefined but sizable portion of this labor derived from foreign laborers, the stakes are high for fruit and vegetable growers, who must have enough labor at critical planting and harvesting times. Fruit and vegetable production tends to be more labor intensive than other agricultural industries because such operations as thinning, cultivating, irrigating, and harvesting require skilled labor to avoid damage to tender plants, bushes, and trees and to ensure the quality and appearance of fresh-market products.

Growing public concern about the quality of American diets is also drawing attention to the fruit and vegetable industry. In their campaign to reduce the rates of heart disease, cancer, and, especially, obesity, public and private sector nutritionists are increasingly emphasizing the need for Americans to increase their consumption of fruit and vegetables. The average American does not consume the recommended 5-10 servings of fruit and vegetables each day, as suggested by the 2005 *Dietary Guidelines for Americans* established by USDA. For Americans to meet these recommendations, fruit consumption would have to more than double and vegetable use would have to rise by more than a fourth, presenting opportunities for U.S. growers.

Consumer demand for greater variety and more healthful choices in food has helped fuel a rise in U.S. imports of fruit, vegetables, and tree nuts. In recent years, imports have been increasingly outpacing exports. While some imports directly compete with domestically produced fruit and vegetables, others complement domestic production and provide greater opportunities for Americans to meet the amounts recommended for daily consumption. For example, during the winter, tomatoes from Mexico compete with Florida-grown tomatoes; however, winter grapes from Chile provide a 12-month supply of fresh grapes in the market, complementing California's late spring and summer production. Other imports, such as tropical fruit, expand consumer choices.

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This finding is drawn from . . .

Fruit and Vegetable Backgrounder, by Gary Lucier, Susan Pollack, Mir Ali, and Agnes Perez, VGS-31301, USDA, Economic Research Service, April 2006, available at: www.ers.usda.gov/publications/vgs/apr06/vgs31301/

USDA/NAL

Food Assistance: How Strong Is the Safety Net?

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- Food assistance programs, particularly the Food Stamp Program, increase food spending and household income.
- In 2004, adding food stamp benefits to recipients' incomes raised 9 percent of recipients out of poverty.
- Nutritional effects of food assistance programs are uncertain.

Born during the Great Depression, but growing to maturity during the 1960s, 1970s, and 1980s, food assistance programs have provided a safety net to help U.S. households purchase sufficient food. Safety nets are created for moral, economic, and political reasons. For economists, a safety net is a policy that ensures a minimum income, consumption, or wage level. Safety nets can be viewed as social insurance to help people through livelihood shocks and stresses, such as those caused by illness, unemployment, or job displacement.

An original intent of food assistance programs was to increase food access and reduce food insecurity. During the last few decades, food assistance programs, particularly the school meals programs and the Special Supplemental Nutrition Program for Women, Infants, and Children (WIC), have also been promoted as a nutrition safety net offering access to essential nutrients and minerals. In fiscal year 2005, Federal funding for the food assistance and nutrition programs was nearly $51 billion, comprising 55 percent of USDA's budget. Farmers, food companies, and program participants have benefited from the increased food spending and improved food security. Evidence of improved nutrition for program participants is more difficult to demonstrate.

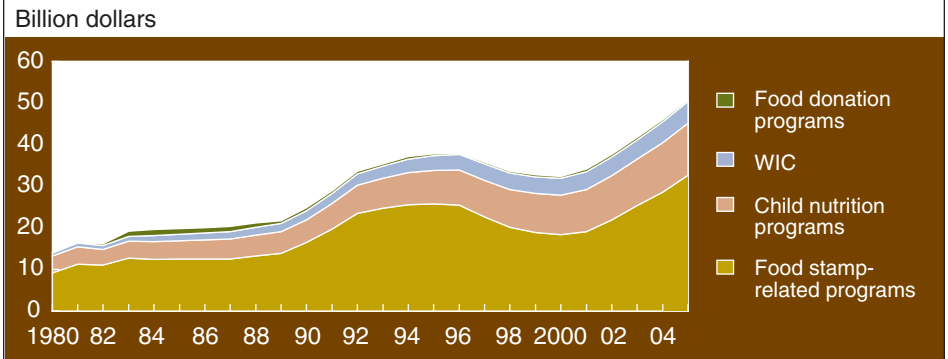
USDA/NAL

Food Assistance Increases Food Expenditures . . .

U.S. agriculture and nutrition policy includes a variety of farm programs and food assistance and nutrition programs that support an abundant food supply and affordable prices. The core food assistance programs, managed and funded by USDA, include the Food Stamp Program, the school meals programs, WIC, and commodity distribution programs. These programs serve one in every five Americans at some point during the year. The Federal Government partners with State and local, public, and private agencies to administer (and, in some cases, contribute funding for) its food assistance efforts. Each program has its own objectives, eligibility criteria, benefit structure, and legislative oversight.

The Food Stamp Program is the foundation of the food assistance safety net. It provides benefits to qualifying families and supports markets for agricultural products. With program costs of $31 billion in fiscal 2005, it is the country's largest food assistance program. Using normal retail marketing channels, the Food Stamp Program provides qualified low-income households with increased purchasing power to acquire food. It offers the only form of assistance available nationwide to most households on the basis of financial need only, irrespective of family type, age, or disability. For many low-income households, the program is an important source of purchasing power. For a typical low-income family with children, food stamps provide about 25 percent of the family's total purchasing power.

USDA expenditures on food assistance programs, fiscal 1980-2005



Source: USDA, Food and Nutrition Service. Data as of April 2006.

The Food Stamp Program increases household food expenditures. Not only does the program increase food expenditures beyond what households would spend without the program, households spend more on food than they would if the same amount of benefit were given as cash. A dollar of food stamp benefit is estimated to increase food spending by 17 to 47 cents, versus 5 to 10 cents from a dollar of cash assistance. Although the food stamps themselves must be spent on food, a dollar of food stamps does not lead to a dollar in additional food spending because cash previously spent on food can be used for rent, clothing, and other nonfood expenses.

. . . Reduces Food Insecurity . . .

Do food assistance programs reduce the probability that vulnerable households experience food insecurity? That is, do the programs lessen the likelihood that poor families have insufficient food for an active, healthy life for all household members? This question was recently answered by George Borjas of Harvard University through ERS-supported research. Borjas took advantage of a "natural experiment" when Federal welfare reform legislation limited the eligibility of immigrant households to receive assistance, while some States chose to continue offering State-funded assistance to immigrant households. Borjas exploited these changes in eligibility rules to examine the link between food insecurity and public assistance.

His research indicates that a 10-percentage-point cut in the share of the population that receives public assistance increases the share of food-insecure households by about 5 percentage points. Borjas's research supports the hypothesis that food assistance programs are an important determinant of providing households with a minimal level of food sufficiency.

. . . and Raises Incomes

Food assistance programs reduce overall economic vulnerability, not just food

insecurity—particularly during downturns in the business cycle. Individuals with longer term needs resulting from chronic illness, disability, or old age also rely on these assistance programs. Food assistance programs targeting those who may be temporarily affected when events take an unfavorable turn can be viewed as income insurance to help people through temporary livelihood shocks, such as those caused by illness or unemployment.

The Food Stamp Program is particularly helpful during economic downturns for households with stronger ties to the workforce. The amount of food stamps given to a household depends on the number of eligible people in a household and the household's net income. A 4-person household with zero net income would receive the maximum food stamp benefit of $506 per month. If the family's net income rose by $100 per month, its benefits would fall to $476.

During a recession, as wages stagnate, work hours decrease, and jobs are lost, food stamp benefits increase for current participants, and more households become eligible. But how many people turn to the Food Stamp Program in the event of a recession? ERS research suggests the 1-year effect of a rise in unemployment by 1 percentage point is about 700,000 additional food stamp recipients. Over 5 years, the 1-percentage-point increase in unemployment leads to a total of 1.3 million additional recipients.

A number of other studies indicate food assistance programs, particularly the Food Stamp Program, have significant positive effects on household income. Although recent evidence suggests a changing relationship between unemployment and food stamps, historically, program effects have been countercyclical. That is, more assistance is provided to households during a downturn in the economy and less during an economic expansion. A report by the Congressional Budget Office indicates that of all the federally funded assistance programs, for which participant eligibility depends on income and assets, only the Food Stamp Program was responsive to changing economic conditions.

Food stamps succeed in raising participants' incomes. Adding the dollar value of food stamp benefits to the income of food stamp recipients yields a significantly different poverty distribution. In 2004, adding food stamp benefits to income was sufficient to raise 9 percent of food stamp recipients out of poverty. Food stamp benefits have an even greater impact on the poorest households, raising 17 percent of food stamp households above 50 percent of the poverty guideline.

Food stamp benefits reduce poverty

Gross income as a percentage of poverty threshold	Distribution of food stamp households		Percentage point change
	Without food stamps	Food stamps included as income	
	Percent		
<50% of poverty	40	23	-17
50-100% of poverty	48	56	8
>100% of poverty	12	21	9

Source: *Characteristics of Food Stamp Households: Fiscal Year 2004,* Food Stamp Program Report No. FSP-05-CHAR, USDA, Food and Nutrition Service, September 2005.

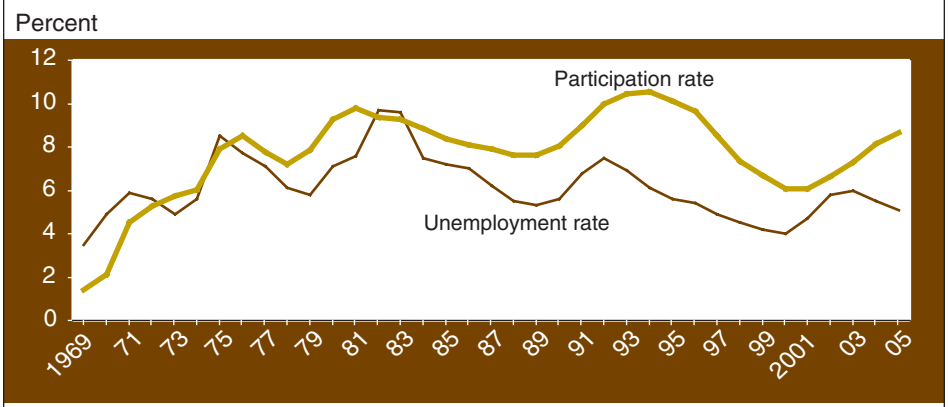
Food Stamps Reduce Child Poverty

In 2000, 8.8 million U.S. children received food stamps. To illustrate the efficacy of food stamps in helping households meet basic needs, ERS researchers added the value of food stamp benefits to household income and then measured the effect on child poverty rates. This "food stamp effect" reduced the number of children in poverty in 2000 by 4 percent, lifting about 500,000 children out of poverty. Augmenting income with the value of food stamp benefits also has the effect of reducing the depth of child poverty by 20 percent or more, as measured by the reduction in the poverty gap or the amount of income needed to raise income to the poverty threshold.

Nutrition Studies Are Dated, Recent Results Are Mixed

The positive impacts of food assistance programs on food expenditures and incomes are clear. Less certain are the programs' impacts on nutrition. ERS has released a series of reports providing the first systematic and comprehensive

Food stamp participation and unemployment have been closely related



Sources: USDA, Food and Nutrition Service and Bureau of Labor Statistics.

Prior Nutrition Research Has Limitations

Most existing research on the nutrition and health effects of food assistance programs shares three key limitations: the potential for selection bias, relative age of the data, and the use of dated approaches to assessing dietary intakes.

- **Selection Bias Can Skew Outcomes.** The gold standard for program evaluation is a randomized experiment where "alike" individuals are randomly assigned to two groups—a treatment group that receives program benefits and a control group that does not. The randomized experiment has rarely been implemented to evaluate food assistance programs, mainly because it is considered either illegal or unethical to withhold benefits from those who meet eligibility requirements and take the necessary steps to qualify.

  The underlying problem is that, without random assignment, the participant (treatment) and nonparticipant (control) groups may not be comparable. For example, food stamp participants may be more highly motivated to achieve the program-intended outcomes than nonparticipants. Researchers have used a variety of sophisticated statistical procedures to counteract selection bias, but some problems remain.

- **Older Studies Do Not Capture Program or Population Changes**. Many studies use data sets from the 1980s and even the 1970s. Findings from these early studies may not apply to today's programs because of significant changes that have occurred inside or outside the program. For example, there have been dramatic changes in grocery store offerings and in Americans' eating habits over the past 20-25 years. These changes have affected household nutrient availability and individual dietary intakes.

  Finally, the design and implementation of some food assistance programs, especially the National School Lunch and School Breakfast Programs, have changed greatly. Studies based on data collected before these changes may not apply to today's programs or participants.

- **Dietary Standards Have Changed.** Most dietary intake studies of food assistance participants focus on mean intakes or the percentage of the population meeting an intake criterion, generally the Recommended Dietary Allowances (RDAs). Although a common practice at the time most of the research was conducted, this approach fails to capture the true prevalence of inadequate nutrient intakes.

  In 1997, the National Academy of Sciences' Institute of Medicine began developing revised dietary standards—the Dietary Reference Intakes (DRIs)—as well as a recommended method for estimating nutrient inadequacy within population groups. In particular, the Institute recommends using longrun average, or "usual," intake, leading to lower estimates of the prevalence of nutrient inadequacy. Researchers have just begun to use these improved dietary assessment methods.

review of the hundreds of studies on the effects of various food assistance programs—especially the main four—on nutrition and health.

The WIC program provides low-income pregnant, breastfeeding, and postpartum women, infants, and children up to age 5 with specific supplemental foods, nutrition education, and referrals to health care and social services. Most studies indicate the WIC program—with its emphasis on iron-fortified infant formula, infant cereals, and ready-to-eat cereals—has helped reduce anemia in children. Further evidence suggests that WIC has improved children's intakes of iron, vitamin B_6, and folate, and reduced their intake of added sugar and fat. Recent studies, however, have failed to reproduce earlier work showing that women in WIC increased their intakes of food energy (calories), protein, vitamin C, iron, and calcium. Moreover, recent studies conducted using dietary assessment methods recommended by the Institute of Medicine indicate that, today, the vast majority of both WIC and non-WIC children have nutritionally adequate diets.

Schools that participate in the National School Lunch Program (NSLP) and School Breakfast Program receive cash and commodities from USDA to offset the cost of providing the meals. In return, the schools serve meals that meet Federal nutritional standards and offer free or reduced-price meals to low-income children.

Analyses of the impacts of the NSLP are anchored by two national evaluations: the National Evaluation of School Nutrition Programs, conducted in 1980-81, and the first School Nutrition Dietary Assessment Study, conducted in 1991-92.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In addition to these national evaluations, studies have used national survey data or local data sets to assess impacts.

These evaluations strongly indicate that the NSLP increases children's lunchtime intakes of riboflavin, vitamin B_{12}, calcium, phosphorus, magnesium, and zinc. Evidence for riboflavin, calcium, and phosphorus is particularly strong. Every study that examined intakes of these nutrients found that NSLP participants had significantly higher intakes at lunch than nonparticipants. It is generally accepted that this pattern is caused by increased consumption of milk, which is a concentrated source of all of these nutrients and a feature of NSLP lunches, by participants.

However, NSLP operations changed substantially after most of the research on health benefits was completed. Responding to findings in the early 1990s that school lunches were high in fat, saturated fat, and sodium, and low in carbohydrates, USDA launched the School Meals Initiative for Healthy Children in 1995 to bring school lunches and breakfasts in line with the *Dietary Guidelines for Americans.* One cannot assume that findings from earlier research apply to today's NSLP. An updated survey (currently underway by USDA) and new research are essential to understanding the impact of the NSLP as it operates today.

Studies prior to the School Meals Initiative indicate that the School Breakfast Program had no impact on the likelihood of a child's eating breakfast, but availability of the program was associated with a greater likelihood that low-income students would eat a more substantial breakfast. The program was found to increase intakes of three minerals—calcium, phosphorus, and magnesium—both at breakfast and over 24 hours. (Riboflavin intake also increased at breakfast, but the effect did not persist over the full day.) All of these nutrients occur in concentrated amounts in milk.

The positive effect of the Food Stamp Program on food expenditures has been extensively analyzed and confirmed in many studies, with much of the research using large national surveys. But increased food spending does not necessarily lead to improved nutrition. The effect of increased food expenditures on household availability of food energy and nutrients is mixed. Early studies of the program found an effect on certain vitamins and minerals, while more recent studies of the program as it is currently structured show increases in the household availability of food energy and protein. Earlier studies indicate that the program may increase children's intakes of vitamins and minerals, but these findings were not replicated in the most recent studies.

The most thorough studies of food assistance programs suggest mixed nutrition effects. Caution must be used in interpreting results, positive or negative, from most nutritional studies of food assistance programs. One cannot logically infer that food assistance programs have no nutritional effects from studies that fail to demonstrate positive effects.

Weak evaluation designs and/or inadequate data limit conclusions that can be drawn about causality between food assistance participation and nutrition and health outcomes (see box, "Prior Nutrition Research Has Limitations"). This is particularly true of longer term outcomes, such as iron deficiency (anemia) and weight status. Food assistance participation must precede such outcomes by long enough and be robust enough to provide a plausible impact. Reliable assessment of impacts requires measurements both before and after participation, preferably multiple measurements. In addition, nutrition outcomes are influenced by a complex interplay of economic, diet, genetic, and environmental factors, making it challenging to isolate the specific impact of food assistance programs.

This article is drawn from . . .

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FEATURE

Income Volatility Complicates Food Assistance

Constance Newman
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- Income fluctuations cause low-income families to cycle in and out of eligibility for food assistance.
- Twenty-eight percent of U.S. households with children experienced at least one monthly income change in the late 1990s that put them above or below the eligibility criteria for many programs.
- Income volatility helps explain why many school lunch beneficiaries were found to be ineligible during verification in past years.

USDA food assistance programs aim to provide a safety net for low-income families in times of need. Temporary declines in family income—of 6 months or so—are commonly thought to be the main problem that recipients face. But many low-income families face more frequent and larger income fluctuations than do higher income families. Most often, a change in hours worked, wages, or the number of household members working is responsible for these fluctuations. Changes in marital status can also cause large income swings. This constant income volatility affects the targeting of benefits in USDA food assistance programs. Just which families are in need, and for how long?


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Incomes of Poor Families Are Volatile . . .

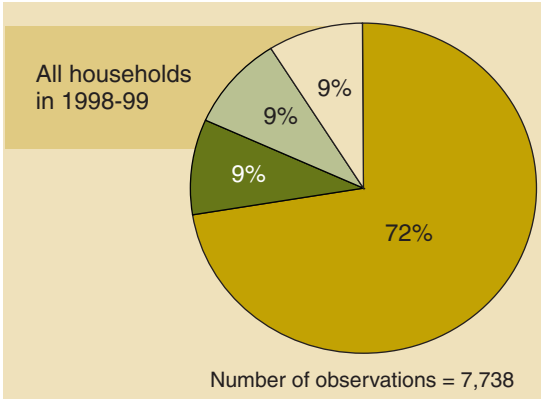
ERS investigated common sources of short-term income volatility using data from the 1996 panel of the Survey of Income and Program Participation (SIPP). SIPP is a nationally representative survey conducted by the U.S. Census Bureau to collect monthly information from the same panel of households for up to 4 years. The study used data from 1996 to 2000, looking at changes over the whole 48 months and changes within the 3 school years during that period.

Eligibility for food assistance programs is usually determined by comparing household income with the poverty level. (Federal poverty guidelines are set each year by the Department of Health and Human Services and vary by the number of household members.) To be eligible for food stamps, a household's gross monthly income must not exceed 130 percent of the poverty level. The Special Supplemental Nutrition Program for Women, Infants, and Children (WIC), the National School Lunch Program (NSLP), and the School Breakfast Program use 185 percent of poverty as an upper limit on program eligibility: if a family's income exceeds that limit, the family is not eligible for WIC benefits or free or reduced-price school meals (unless they participate in other associated programs).

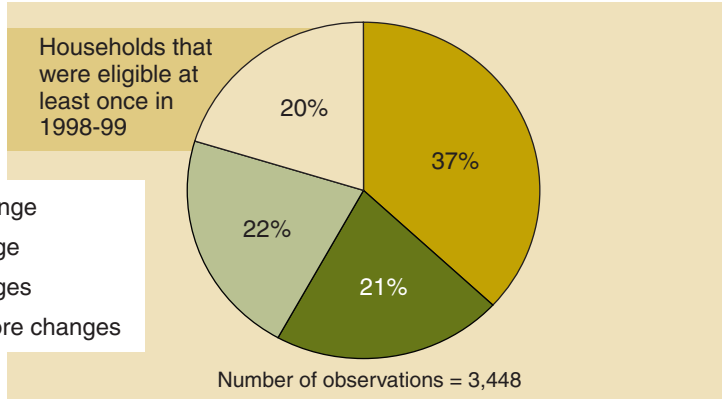
The ERS study found that, within 1 year, 28 percent of all U.S. households with children experienced at least one monthly income change that put them above or below the 185-percent-of-poverty threshold, moving them from eligibility to ineligibility or vice versa. Among low-income families, the chances of changing eligibility status were even higher. For households with incomes below 185 percent of poverty in at least 1 month of the year, almost two-thirds had one or more changes in eligibility status, and one-fifth had three or more changes in a single year.

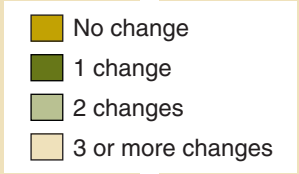
Not surprisingly, households closest to the eligibility cutoff point (185 percent of poverty) experienced the most eligibility changes. Families whose average monthly incomes were between 130 and 240 percent of poverty crossed the eligibility line five times per year, on average.

More than a fourth of all households underwent at least one change in eligibility for the National School Lunch Program in the late 1990s . . .



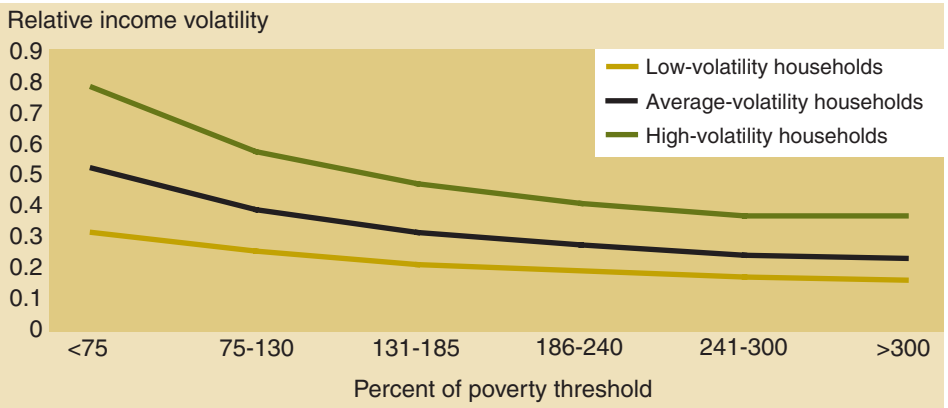
. . . while almost two-thirds of once-eligible households underwent at least one eligibility change





Source: ERS analysis of the Survey of Income and Program Participation, 1996 panel.

Income volatility of lowest income households was double that of highest income households



Source: ERS analysis of the Survey of Income and Program Participation, 1996 panel; number of observations = 11,135.

To compare income volatility across income groups, ERS measured a family's monthly income changes versus its usual monthly income—that is, its relative income variation. (Income is measured as a percent of the poverty threshold.) These relative income changes were higher for poorer families than for higher income families. For hourly workers, a sick child can mean the loss of wages for a day or two, while a seasonal slump in customers can mean a smaller paycheck or even a layoff. In the late 1990s and into the early 2000s, families with the lowest incomes (below 75 percent of the Federal poverty guideline) had relative income changes that were double those of the highest income families (incomes above 300 percent of poverty).

When families are ranked in order of low to high volatility, the family at the median of the poorest group had double the volatility of the median family in the highest income group. The median family in the poorest group experienced volatility half the size of its usual income, while the median family in the highest group experienced volatility one-fifth as great as its usual income. Even for families at lower levels of volatility, the poorest families had roughly double the income volatility of the highest income families.

. . .And Employment Shifts Are the Main Cause

ERS tested a rich set of events that might trigger an income change, while also controlling for fixed demographic and labor market participation characteristics. Labor market "trigger" events—those changing from month to month—included changes in: (1) the amount of employment, either in the number of jobs held by different members or in the number of hours worked by all household members (total household hours worked); (2) pay rates for different household members; and (3) the percentage of household members working for pay (versus dependents). Since a household's poverty status depends on the number of people in the household, three household composition triggers were considered: changes in the number of children in the household; a marriage, divorce, separation, or death of a spouse; and the addition or subtraction of other adults.

Many of these trigger events could occur in the same month, and they could have opposite effects on the family's income. A household member could lose one job but receive a raise in another job. One member could lose a job, while another chooses to work longer hours, perhaps in response to the other's job loss. A boyfriend or girlfriend could join the household, or an older child could move out.

The fixed characteristics and trigger events most associated with an increase in a household's income (or "exit" from program eligibility) were also the ones most associated—albeit in the opposite direction—with a decrease in a household's income (or "entry" into program eligibility). In both exits and entries, the fixed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characteristics had predictable effects. For example, when the head of the household had higher levels of education, the household was more likely to exit program eligibility, and when the head of the household had lower levels of education, the household was more likely to enter program eligibility.

Of the trigger events, changes in labor market participation were the most likely to lead to both exit and entry. Changing from a married household to a female-headed one (after becoming divorced, separated, or widowed), although one of the most infrequent changes that occurred across the study group, was the event most likely to lead to entry into eligibility.

The following trigger events were positively associated with exit from eligibility and are shown in order of their statistical significance (their frequency of occurrence over the study's 48 months is shown in parentheses):

- An increase in total household hours worked (27.3 percent);
- An increase in the percentage of working adults in the household (5 percent);
- An increase in wages for a spouse's primary job (8.3 percent).

And the following trigger events were positively associated with entry into eligibility:

- A change from married to female-headed household (0.3 percent);
- A reduction in total household hours worked (33.4 percent);
- A reduction in the percentage of working adults in the household (3 percent);
- Reductions in the wages of the spouse (1.9 percent), other adults (7 percent), and the household head (15 percent).

Overall, the results point to the importance of the total labor market participation of the household as a source of short-term income volatility. The total number of hours worked was found to change most frequently of all events and when it did, it often affected eligibility. The importance of a marital status change, the percentage of working household members, and the pay rates of spouses and other adults in the household also suggests that having multiple household members in the labor force is critical for avoiding poverty-level incomes.

Income Volatility Helps Explain School Lunch Certification Errors

When a family applies for benefits from a food assistance program, program staff assess eligibility based on whether the family's current income—often monthly—is below the program's limit. If so, the family is then "certified" to receive program benefits for some number of months. To target benefits to the needy more precisely, the certification period could be shortened—from, say, 6 months to 3 months. But shorter certification periods are more costly to administer, and they may deter eligible households from applying because of the need to re-apply more often.

In 2004, Congress passed legislation that changed the eligibility period for free and reduced-price lunches under the NSLP from 1 month to the full school year. Previously, families were required to report monthly income increases during the school year that could have made them ineligible. Such changes were rarely reported, and thus schools rarely changed the eligibility status of students due to changes in household circumstances. At the same time, administrators, through the verification process, sought to reduce the number of students receiving meal benefits for which they were not eligible, estimated in most studies to be around 15 to 20 percent of students. Evidence now suggests that this problem of "overcertification" found at the time of verification was affected by the 1-month eligibility period.

The NSLP provides free lunches to students from households with incomes at or below 130 percent of poverty and reduced-price lunches to students from households with incomes between 131 and 185 percent of poverty. Every year, schools are required by law to request income documentation by mid-November (before 2004, it was by mid-December) from a small sample of households whose children receive free or reduced-price meals. Such verification can result in adjusted or terminated benefits.

In the past few years, USDA's Food and Nutrition Service (FNS) has sponsored several studies to measure possible sources of error in the application, certification, and verification processes. They investigated, among other things, the extent to which households misreported their incomes or to which schools made

administrative errors. ERS examined another potential source of error: income boosts that would have caused households eligible at the start of the school year to become ineligible by the time their incomes were verified by schools later in the year.

For each of three school years in SIPP (1996-97, 1997-98, and 1998-99), ERS tracked the month-by-month eligibility of households that were income eligible in August. By December—when a sample of incomes would have been verified by the school—27 percent of households had become ineligible. Most (57 to 60 percent) of those that had become ineligible for either benefit by December were households that had been eligible for reduced-price meals in August.

So, estimated overcertification due to income volatility (27 percent) is higher than most estimates of total overcertification (15 to 20 percent) from verification samples. Other overcertification studies estimated two other sources of error—administrative and household error—to be around 10 to 12 percent. By itself, monthly income volatility could have accounted for all of estimated NSLP overcertification identified at the time of verification. However, since the ERS analysis counted all eligible households—not those that actually applied in the years examined—ERS's estimate of error due to income volatility may be thought of as an upper bound estimate. The other sources of error remain, and FNS continues to measure their contributions to total errors. With the extension of the NSLP certification period from 1 month to the full school year, the problem of income volatility, which is extreme for some households, has been resolved.

Income Volatility Invites a Rethinking of Food Assistance

The high and persistent income volatility among potential food assistance recipients has implications for how these programs are run. If a program's certification period is short—say 1 month, requiring recipients to reapply each month—potential applicants may choose not to apply even though they may be eligible. It is also more expensive to administer shorter periods. On the other hand, a long certification period increases the chances that a recipient household's income will rise above the eligibility threshold. This income "creep" challenges many people's notion of the integrity and purpose of a food assistance program. Program administrators attempt to balance program access and integrity, and income volatility is a complicating factor.

With welfare reform, an increasing proportion of the target population for food assistance is working rather than relying strictly on public assistance. Among food stamp recipients, 29 percent had labor market earnings in 2004, up from 19 percent in 2000. And it is the vicissitudes of the labor market that underpin most short-term income volatility. So, is being needy defined only to the extent that income falls below a certain fixed amount? Or should neediness include being buffeted by low, fluctuating, and uncertain income? These findings invite reflection on the way we think about the concepts of "needy" and "eligible."

A sick child can mean the loss of a day's wages or even the loss of a job.

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This article is drawn from . . .

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Global Agriculture and the Doha Round

Market Access Is the Key

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- Trade liberalization leads to economic gains for both developed and developing countries through more efficient use of resources as well as the productivity and investment growth that come with more open markets.
- Increasing market access by lowering tariffs would produce the greatest share of benefits from trade liberalization.
- Tariffs remain contentious in agricultural negotiations, because many agricultural tariffs are high and cuts will have to be ambitious to increase trade and secure a successful agreement.

An author interview is featured online at: www.ers.usda.gov/amberwaves/

For the past 5 years, World Trade Organization (WTO) members have struggled to negotiate a new agreement in the Doha Development Round. In launching a new round of trade negotiations, WTO members recognized the contribution of the multilateral trading system to economic growth and development and pledged to continue reforming economic policies. In addition, the Doha declaration emphasized the interests of developing countries, which constitute the majority of WTO members, adding complexity to the talks but increasing the potential gains.

Agriculture has taken center stage in the Doha Round, as it did in the Uruguay Round. Its importance to a final agreement was underlined by the recent suspension of Doha Round negotiations on July 24, mainly as a result of difficulties in finding common ground in agriculture. Persistent wide differences on the necessary level of cuts in agricultural tariffs and domestic support were the primary reason behind the indefinite suspension of negotiations. Clearly, progress in all three areas, or "pillars," of agricultural trade policy—market access, export subsidies, and domestic support—is needed to reach consensus. But research has indicated that tariff reductions that improve market access are key to achieving the benefits of trade liberalization.

Denis Balibouse, Corbis

Andrew Wong, Corbis

Trade Liberalization Leads to Economic Gains

The last several decades have witnessed a surge in global economic growth. More open markets create opportunities for growth by encouraging more efficient allocation of resources. For some countries, this means that labor and other resources may shift from agriculture and other primary production sectors to higher value economic activity. More open markets also encourage transfers of technology and technical expertise. With growth in human and physical capital can come increased productivity and investment in manufacturing and service industries. Where these developments bring higher incomes, an increase in consumer demand for goods and services provided through global markets may in turn develop.

Countries often impose policies that interfere with open markets in agriculture. WTO members have organized agricultural negotiations to address three categories of policy that can distort trade: market access, which includes import barriers like tariffs and tariff-rate quotas (TRQs); domestic support, which includes producer subsidies through income and price support programs; and export subsidies. By distorting production or consumption decisions, each of these types of policies can impose economic costs both on the countries that employ them and on their trading partners.

Import barriers distort markets by raising the effective price of imported goods, thereby reducing the competitiveness of imports. Reduced competition from imports supports higher prices for domestic goods and encourages increased domestic production. Import barriers also help keep inefficient domestic producers in operation, and, like trade-distorting domestic subsidies, they keep resources in the production of supported products that could be employed more profitably elsewhere, including outside of agriculture. Trade-distorting domestic supports also lead to an increased supply of agricultural products. For exporting countries, the increased supply will lead to greater exports; for importing countries, it will reduce demand for imports. The resulting increase in exports and/or reduction in imports can depress world prices and increase competition for producers in other countries. This situation is compounded when export subsidies are used to dispose of excess domestic production on world markets.

Removing or reducing such distortions through multilateral trade negotiations results in widespread economic benefits. In countries with low protection, producers of products for which world prices rise will benefit from higher prices and increased exports. Consumers in formerly protective countries will gain from lower prices induced by competition with lower priced imports. Policy reforms often lead to greater investment in developing countries, increasing the productive capacity of their economies. In the longer term, growth in investment and productivity further enhances trade by increasing countries' ability to import agricultural products.

To quantify the gains from trade liberalization, ERS research—at the opening of the Doha negotiations in 2001—estimated the costs of agricultural policy distortions to the world economy and the likely economic gains from their removal. The combination of agricultural tariffs, domestic support, and export subsidies was estimated to dampen world agricultural prices by about 12 percent. ERS estimated that the increased investment and productivity growth under more open economies accounted for nearly half of total global benefits from trade liberalization and were a particularly important component of gains for developing countries.

Increasing Market Access Is Key

ERS identified import barriers—tariffs—as the largest source of global economic costs from agricultural policy distortions, accounting for over half of the estimated reduction in agricultural prices. Subsequent research has also cited tariff elimination as the source of greatest potential benefits from trade liberalization, although estimated gains differ based on methodology and assumptions about market conditions.

Tariffs are more price distorting than domestic support or export subsidies largely because they are more widely used. Tariffs directly affect market prices, having an impact on both producer and consumer decisions. Many countries choose to support domestic prices through tariffs, which may increase government revenues, rather than with domestic subsidies, which must be financed through government spending. Countries that use domestic programs to provide both price support and price stability for producers

frequently use tariffs so that lower cost imports will not undermine the effectiveness of price support operations.

Tariff cuts would provide significant benefits by forcing reductions in domestic price supports, used primarily by developed countries. Significant gains would also be achieved from improved market access among developing countries. Their elimination of tariffs would account for more than a third (38 percent) of the estimated increase in world prices resulting from a global end to tariffs. Developing countries themselves stand to benefit, as trade among developing countries—so-called South/South trade—accounts for 46 percent of agricultural exports in those countries. According to ERS research, the U.S. would see its greatest economic gains from a removal of import barriers. U.S. agriculture would also benefit from investment- and productivity-led demand growth in developing countries for U.S. farm products.

Although analysts agree that increasing market access through tariff reductions holds the greatest potential gain from trade liberalization, market access reform remains the most contentious area of agricultural negotiations. Both developed and developing countries face domestic pressures to maintain tariff barriers despite the mandate to reduce them in the Doha negotiations. Under some circumstances, pressure to maintain tariff barriers may come from trading partners (see box, "Why Are Tariff Preferences an Issue?").

In developed countries, tariffs can continue to provide support to producers even as domestic programs shrink. Policy changes since the Uruguay Round have demonstrated that some countries can further reduce export subsidies and, increasingly, trade-distorting domestic support. However, unilateral policy reforms generally have not included reductions in import barriers, which remain high even in some countries where subsidies have declined markedly. Countries also use import barriers to promote food security or environmental/rural development objectives.

Developing countries may find tariffs a particularly valuable revenue source, as well as a means of controlling imports to manage their balance of payments. Developing countries generally lack the financial resources to support farmers directly. Import barriers can be a means of protecting less productive or small-scale agriculture that sustains rural communities and employs much of the population. So tariffs remain a mainstay of agricultural policy in many countries and are politically difficult to reform, despite evidence of the benefits.

Why Are Tariff Preferences an Issue?

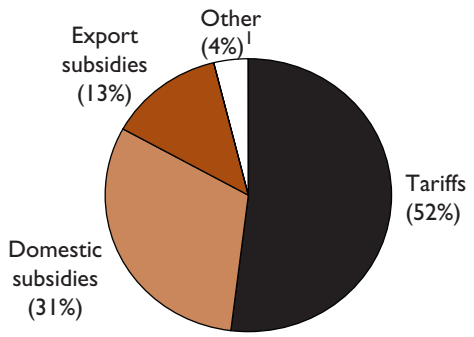
The current instrument for achieving increased market access for developing-country exports is tariff preferences granted by developed countries. Under these arrangements, developed countries allow imports of some products from developing countries at tariffs below those levied on other countries. The margin of preference essentially depends on the difference between the preferential tariff and the bound tariff (maximum tariff that a country agrees to observe) that most other countries face. When bound tariffs are reduced through multilateral trade negotiations, the margin of preference developing countries receive is reduced, a process known as preference erosion.

Eligible countries generally welcome tariff preferences, and some have proposed that the tariff-cutting process for important products that receive preferences be delayed in order to protect margins of preference. Some small island developing states that rely heavily on preferential exports of agricultural products are concerned that preference erosion would make their exports vulnerable to increased competition from other countries, including other developing countries. They have asked that the market access provided under preferences be maintained during the reform process, a proposal that has put them at odds with developing countries advocating deep cuts in developed country tariffs.

ERS research has shown that, in general, the trade gains from preferential trade programs tend to be concentrated among higher income developing countries, which include some of the world's largest agricultural traders. This occurs despite the fact that they tend to benefit from preferences on a much smaller range of products than the least developed countries (LDCs). Frequently, the LDCs lack the production and export capacity to take advantage of tariff concessions. However, despite their relatively modest exports under these programs, LDCs are expected to be more vulnerable to increased competition if bound tariffs are cut.

As a group, developing countries should gain from cuts in bound tariffs. Many products exported by higher income developing countries either are excluded from these programs or receive preferences only for limited quantities. The tariffs levied on excluded products tend to be significantly higher than those on which preferences are granted. As a result, while LDCs may experience some trade loss due to preference erosion, these losses are expected to be more than balanced by trade gains in the larger, more efficient developing countries, particularly in products not currently subject to preferences or constrained by quotas. In order to assist LDCs, some have proposed allowing duty- and quota-free access for all LDC agricultural exports to both developed and higher income developing countries.

Tariffs account for largest share of world price distortions



[1]Other refers to interaction effects among policies.
Source: *The Road Ahead: Agricultural Policy Reform in the WTO—Summary Report*, AER-797, USDA, Economic Research Service, January 2001, www.ers.usda.gov/publications/aer797/

Doha Talks Highlight Market Access

The importance of increasing access to foreign markets for their producers has led some countries to focus on market access negotiations. For competitive exporting countries—including developed countries like the United States, Canada, Australia, and New Zealand, and developing countries like Brazil and Argentina—tariff barriers limit their access to markets and erode potential returns to their producers. For them, improved market access is a high priority in the Doha trade talks. For the United States, it is seen as an essential balance to reductions in domestic support programs.

In the Uruguay Round, a major success story was tariffication, whereby countries agreed to convert their nontariff import barriers like quotas into bound tariffs (maximum tariffs that countries agree to observe) to make them more transparent and facilitate their reduction. The tariff-cutting formula in the Uruguay Round required that developed-country tariffs be cut by an average of 36 percent, subject to a minimum cut of 15 percent for individual tariffs (24-percent average and 10-percent minimum for developing countries). The latitude inherent in this formula meant that tariffs that were high at the outset of negotiations remained high after the cuts were made, preserving the wide disparity of tariffs within and across countries (see box, "Varying Tariff Profiles Illustrate Difficulties in Negotiating Cuts").

Doha Round negotiators also must agree on a formula for tariff reduction. The transparency created by tariffication highlighted the disparities preserved through the Uruguay Round formula. At last December's Hong Kong ministerial meeting, WTO members agreed to reduce the disparity in tariffs through a tiered approach, with larger cuts for tariffs in higher tiers. This tariff-cutting approach would harmonize tariffs more than linear cuts used in the Uruguay Round.

Several exceptions to scheduled tariff cuts have been discussed. In the Hong Kong ministerial declaration, members acknowledged a need to allow lower tariff cuts for *sensitive products.* Countries would be allowed to designate a percentage of tariff lines as sensitive products, with proposals ranging from 1 to as much as 15 percent of tariff lines.

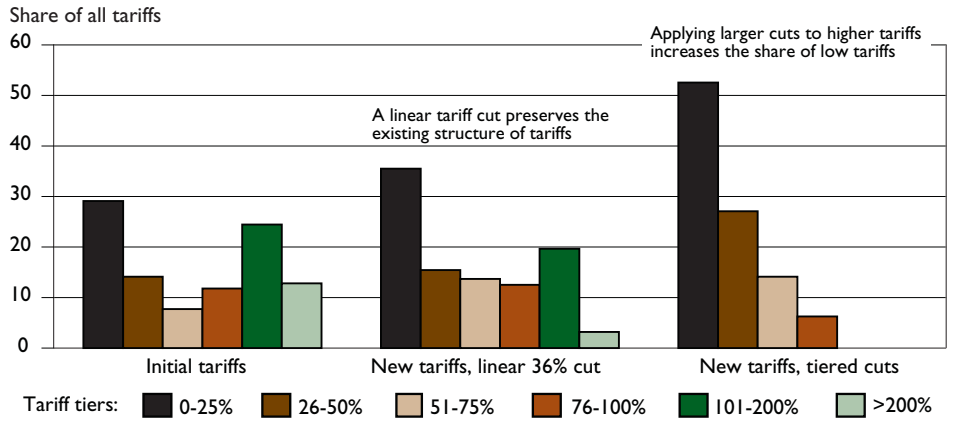
The Hong Kong declaration also made several concessions to developing countries. Special and differential treatment granted to developing countries would subject them to shallower tariff cuts and longer transition periods to implement those cuts. The ministerial declaration also adds the concept of self-designation for special products in the context of developing countries' food security, livelihood security, or rural development. While all products are expected to contribute to the reform process, tariffs on special products would be eligible for flexible treatment with respect to the amount they would be cut and the degree to which they would be subject to any new market access commitments.

The Special Safeguard Mechanism (SSM) would allow developing countries to raise import duties temporarily to deal with surges in imports or drops in prices. Many developing countries view the SSM as another fundamental component of special and differential treatment that should be available for all agricultural products, while developed countries tend to view it as another way for developing countries to avoid market penetration. In previous rounds, making a safeguard mechanism available amid rapidly increasing imports or falling prices was seen as one way to convince countries to cut their bound tariffs more rapidly than they would otherwise.

Disagreement on Market Opening Threatens Deadlines

Most export-oriented developing countries are eager to gain additional access for their exports in developed-country markets. However, developing countries as a group differ on the extent to which they should open their own markets. Developing countries have generally favored reduced expectations for opening their markets in order to protect undeveloped agricultural sectors on which a large share of the population depends. Export-oriented developing countries, however, may be willing to sacrifice some protection for other sectors to gain access for their agricultural exports to developed-country markets. Developing countries do agree that offers to reduce their own tariffs substantially hinge on developed-country com-

Tiered tariff cuts greatly increase the share of low tariffs and reduce the share of high tariffs



Varying Tariff Profiles Illustrate Difficulties in Negotiating Cuts

A closer look at the pattern of tariff protection among WTO members may help explain why increased market access is so difficult to achieve. WTO-bound agricultural tariffs—the maximum tariff rates that each WTO member may impose on imports—average 62 percent globally, although rates vary widely by countries and across commodities. While a bound tariff reflects the maximum to which a tariff can be raised and still be in accordance with WTO agreements, most countries impose tariffs on imports that are below these levels. These applied tariffs average 19 percent globally.

The difference between bound and applied tariffs tends to be greater for developing countries. Compared with developed countries, developing countries also have a higher share of products for which bound tariffs are over 50 percent, and often over 100 percent. Some developed countries also maintain a similarly high level of tariffs for a few products that governments consider to be sensitive, and for which they seek continued protection in the WTO negotiations.

Most agricultural tariffs in developed countries are now quite low. U.S. tariffs are among the lowest worldwide, averaging 12 percent. For most developed countries, three-quarters or more of their bound agricultural tariffs are below 25 percent. Three percent of the tariffs in the U.S. agricultural schedule exceed 50 percent, versus 9 percent for the EU and 19 percent for Japan. Most of the highest U.S. tariffs are the over-quota tariffs imposed on sensitive products with tariff-rate quotas, such as dairy, sugar, tobacco, and peanuts. In other countries, tariffs over 50 percent are mainly on meats, dairy products, and sugar (and also grains, fruits, and vegetables in the EU and Japan).

By maintaining higher bound rates, countries appear to reserve the right to raise tariffs on raw agricultural products such as fruit, vegetables, grains, and sugar commodities. Actual applied tariffs may be lower. In contrast, partly to encourage domestic manufacturing, value-added products such as dairy, tobacco products, and processed food products (various fruit juices, chocolates, peanut butter, sugar confectionery) carry the highest applied tariffs.

In the Doha Round of negotiations, cuts will be negotiated based on bound tariffs. Because of the large differences between bound and applied tariffs for most countries, the reduction formula negotiated will have to be ambitious in order to substantively expand market access, while at the same time allowing smaller tariff cuts for developing countries and special consideration for sensitive products.

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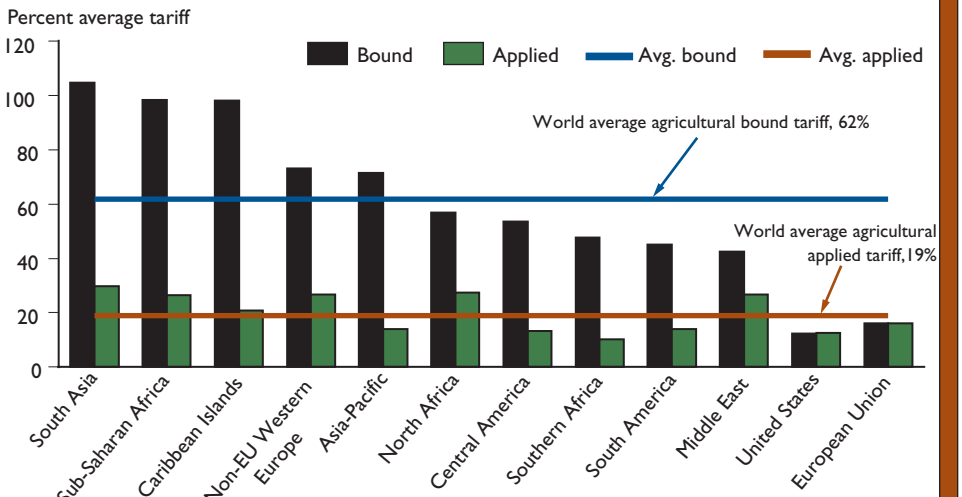
Developing countries have the biggest difference between bound and applied tariffs



Source: Calculations by USDA, Economic Research Service using Agricultural Market Access Database and WTO Member-submitted ad valorem equivalent estimates.

mitments to substantially reduce domestic support. The degree of market opening is also a point of disagreement among developed countries. Several food-importing countries with highly protected agricultural sectors—including Japan, Korea, Norway, and Switzerland—have resisted ambitious market-opening proposals.

The Doha Round, while making some significant tentative progress, has stumbled over attempts to agree on "modalities," or formulas (including numerical targets) for cutting tariffs, domestic support, and export subsidies. These modalities, to be used by members to produce their commitments, were to be agreed to by April 30, 2006. A subsequent deadline was missed when a meeting of trade ministers concluded without a breakthrough on July 24, 2006, and negotiations were suspended. The Bush administration's trade promotion authority, deemed essential to negotiating trade agreements, expires in June 2007, which puts pressure on negotiators to reach agreement soon if the Doha Round is to reach a successful conclusion. Without some major new efforts by WTO members, meeting that deadline may not be possible.

This article is drawn from . . .

Agricultural Trade Preferences and the Developing Countries, by John Wainio, Shahla Shapouri, Michael Trueblood, and Paul Gibson, ERR-6, USDA, Economic Research Service, May 2005, available at: www.ers.usda.gov/publications/err6/

The Road Ahead: Agricultural Policy Reform in the WTO—Summary Report, Mary Burfisher, editor, AER-797, USDA, Economic Research Service, January 2001, available at: www.ers.usda.gov/publications/aer797/

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Agricultural Policy Affects Land Use and the Environment

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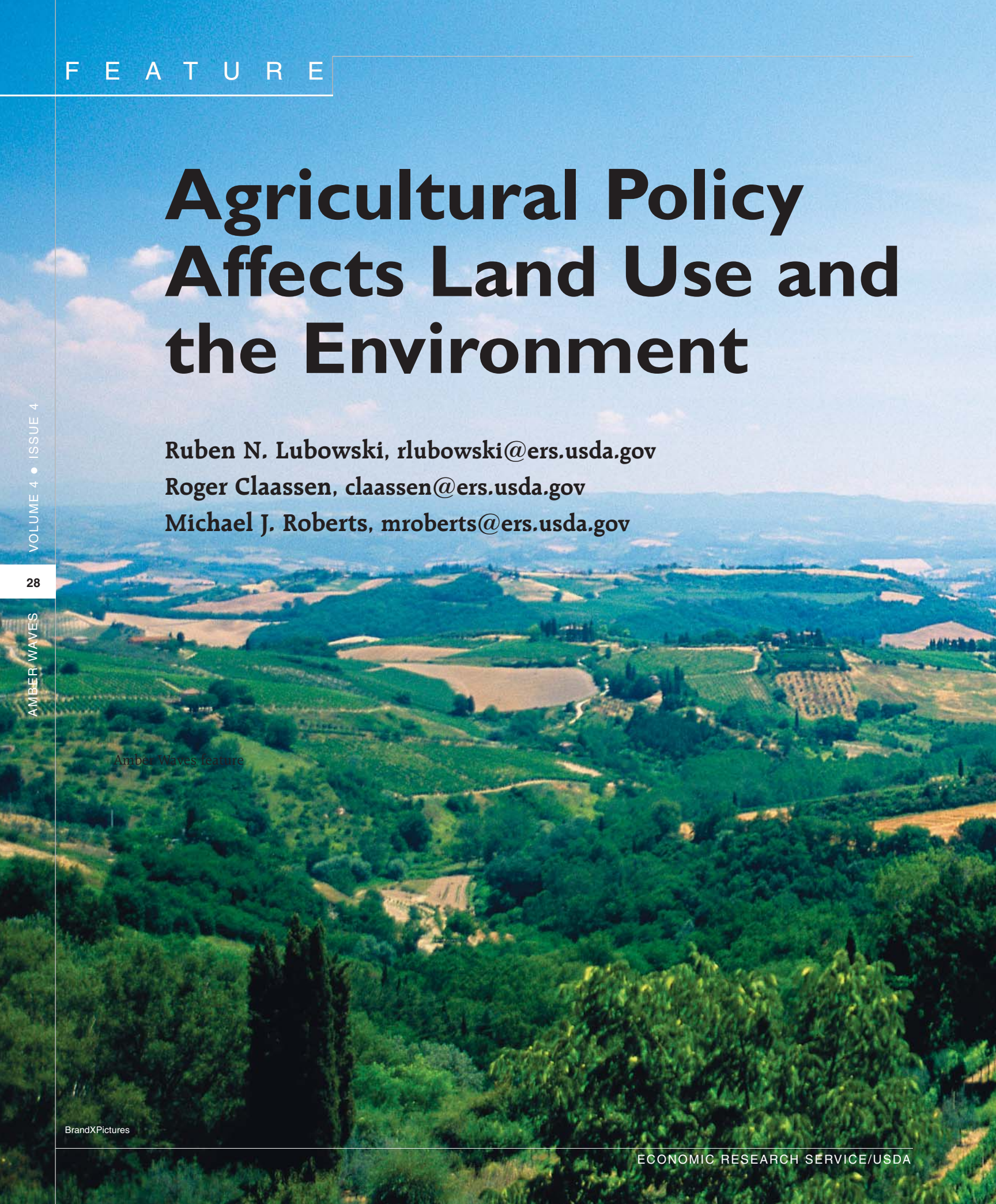

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- Economic conditions and policy changes encourage producers to shift less productive, or "marginal," cropland in and out of production.
- Because marginal lands are also more environmentally sensitive than highly productive land along several dimensions, cropland shifts have environmental, as well as economic, effects.
- Thus, agricultural and conservation programs that affect land use likely have greater effects on erosion and some other environmental factors than on production.

While total U.S. cropland acreage has remained roughly constant for 100 years, relatively large amounts of less productive, or "marginal," cropland have shifted in and out of production over time. Almost three-quarters of the cropland acreage that shifted into or out of cultivation between 1982 and 1997 had soil productivity below that of the average acre of cropland. Economic forces, such as changing commodity prices or production costs, are likely to induce farmers to shift marginal land in and out of production, while farmers will tend to keep highly productive cropland in cultivation. ERS research shows that, in general, low-productivity croplands are more environmentally sensitive than high-productivity land along several dimensions, including wind and water erosion and potential nutrient losses to water. Therefore, land-use changes on less productive cropland may have unanticipated environmental consequences.

Agricultural and conservation policies also influence land-use decisions. Land retirement programs directly affect land use, while other agricultural policies may change the economic incentives to cultivate crops. Two very different types of policies—the Conservation Reserve Program (CRP) and the Federal Crop Insurance Program—illustrate how policies can affect land use on lower quality and environmentally sensitive cropland. These government programs that affect land use may have as significant an effect on the environment as on production, and the specific environmental impacts will vary with the features of each program.

The CRP Provides Environmental Benefits by Retiring Marginal Lands

The Conservation Reserve Program is a land retirement program that offers payments to farmers to reduce cropland acreage for environmental gains. The program has been an important driver of changes in cropland since 1985. The CRP uses a competitive bidding process with selection criteria that target highly erodible land, among other environmental factors. This gives farmers the incentive to offer their less economically productive acreage, and, by design, the retired land is more environ-mentally sensitive than average cropland.

In 2005, the CRP paid farmers $1.7 billion to keep a land area almost the size of Iowa out of production. Thus, the CRP directly influences cropland conversion. As long as the program does not affect commodity prices, the land-use effects of the CRP can be largely restricted to those lands participating in the program. An ERS study of land parcels enrolled in the CRP found them to be less productive and more environmentally sensitive in terms of erosion, but not in terms of potential nutrient runoff and leaching, than average cultivated cropland and than other lands shifting out of cultivation. These patterns in environmental sensitivity for CRP and non-CRP land held even within the same crop reporting district (multicounty areas within States).

Federal Crop Insurance Subsidies May Encourage Cultivation of Marginal Lands

Although crop insurance participation does not involve a direct land-use conversion, unintended acreage and production impacts may occur. The Federal Crop Insurance Program raises incentives to grow crops. A longstanding concern is that the program may maintain or increase crop cultivation in frequently flooded and other risky areas containing wetlands and other environmentally sensitive lands.

Farmers weigh three main factors when deciding whether to purchase weather-related crop insurance: their estimated probability that a weather-related event will occur; the amount of loss that will be indemnified (never 100 percent); and the premium they must pay. They will tend to choose to insure if their perceived loss is less with insurance than without insurance. The Federal Crop Insurance Program subsidizes part of the premium for farmers, which increases their incentive to participate.

In the early 1990s, the high cost of insurance premiums discouraged participation in the program. In 1994, following the devastating floods of 1993, Congress passed the Federal Crop Insurance and Reform Act, increasing premium subsidies for all crop insurance products, while adding catastrophic coverage and revenue insurance options. The premium subsidies were increased significantly to encourage more producers to participate.

Further subsidy increases were enacted by Congress in 1999-2000. Crop insurance participation increased with the growth in subsidies. Insured acreage more than doubled from 90 million acres to 197 million acres between 1990-94 and 1995-99, and then rose to an average of 212 mil-

Lynn Betts, USDA/NRCS

lion over 2000-03. That is about 60 percent of cultivated cropland in the 48 contiguous States.

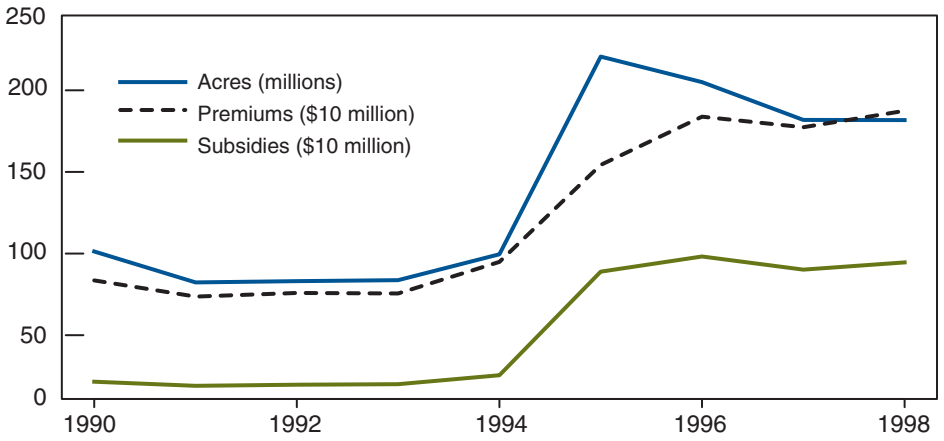
ERS researchers studied the period of increased enrollment after the 1994 Crop Insurance Act to observe how land use responded. Insurance program changes increased cropland in production by an estimated 1 percent in 1997. But effects of these changes appear to have been largest on low-quality and certain environmentally sensitive lands. An ERS model was used to estimate the acreage that had been brought into or kept in cultivation due to the increases in insurance subsidies, and, on that acreage, soil productivity was below that of average cropland. While 25 percent of all cultivated cropland was classified as highly erodible in 1997, an estimated 33 percent of acreage added to cultivation during the period after the increased insurance subsidies was highly erodible land.

ERS research found that lands brought into or kept in cultivation due to changes in the crop insurance program were slightly more prone to frequent flooding and were more likely to include previously cropped wetlands and environmentally sensitive ecosystems than average cultivated cropland. Total wetlands in cultivation as a result of the 1992-97 subsidy increase are estimated at 37,000 acres, 0.7 percent of the 5.4 million acres of wetlands under crop cultivation. But the affected wetlands represent about a fifth of the net loss (163,000 acres) in non-Federal wetland area between 1992 and 1997.

Impacts Are Not the Same Across Programs

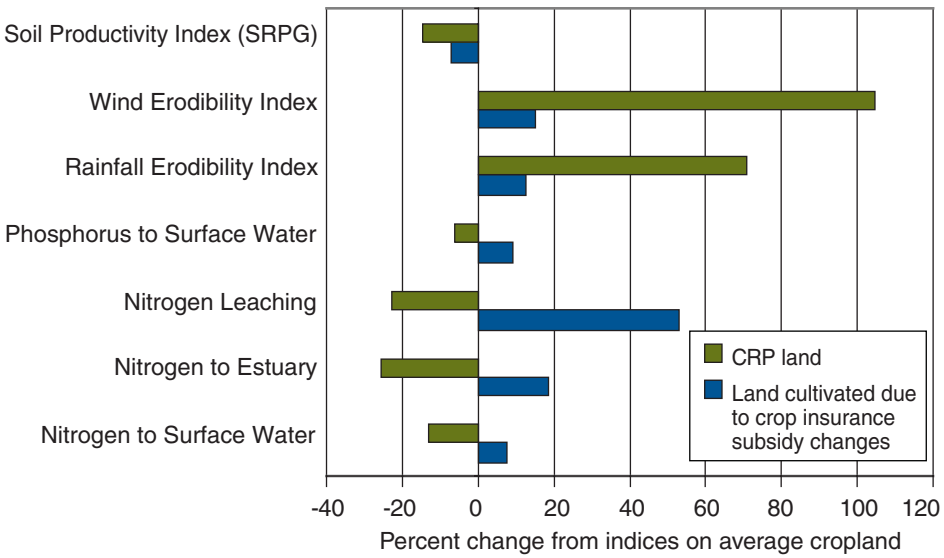
Crop insurance subsidies are also estimated to increase cultivation in areas subject to high levels of nutrient loss. While nutrient loss estimates take into account land erodibility, they may not accurately reflect differences in fertilizer applications on less productive lands. These

The Federal Crop Insurance and Reform Act of 1994 boosted insurance subsidies and participation



Source: USDA's Risk Management Agency.

On cropland retired under CRP and cropland added by insurance subsidies, soil productivity is lower and environmentally sensitivity is greater than on average cultivated cropland



Notes: The Soil Rating for Plant Growth (SRPG) is a measure of soil productivity ranging from 0 to 100. The wind and rainfall erodibility indexes (EI) are defined by the ratio of inherent erodibility to the soil loss tolerance. This measure is independent of land use and management, and measures the fragility of the soil in terms of erosion, capturing both the potential of a soil to erode and its resistance to erosion damage. Potential nitrogen and phosphorus loss to water are simulated using the Environmental Policy Integrated Climate Model (EPIC).

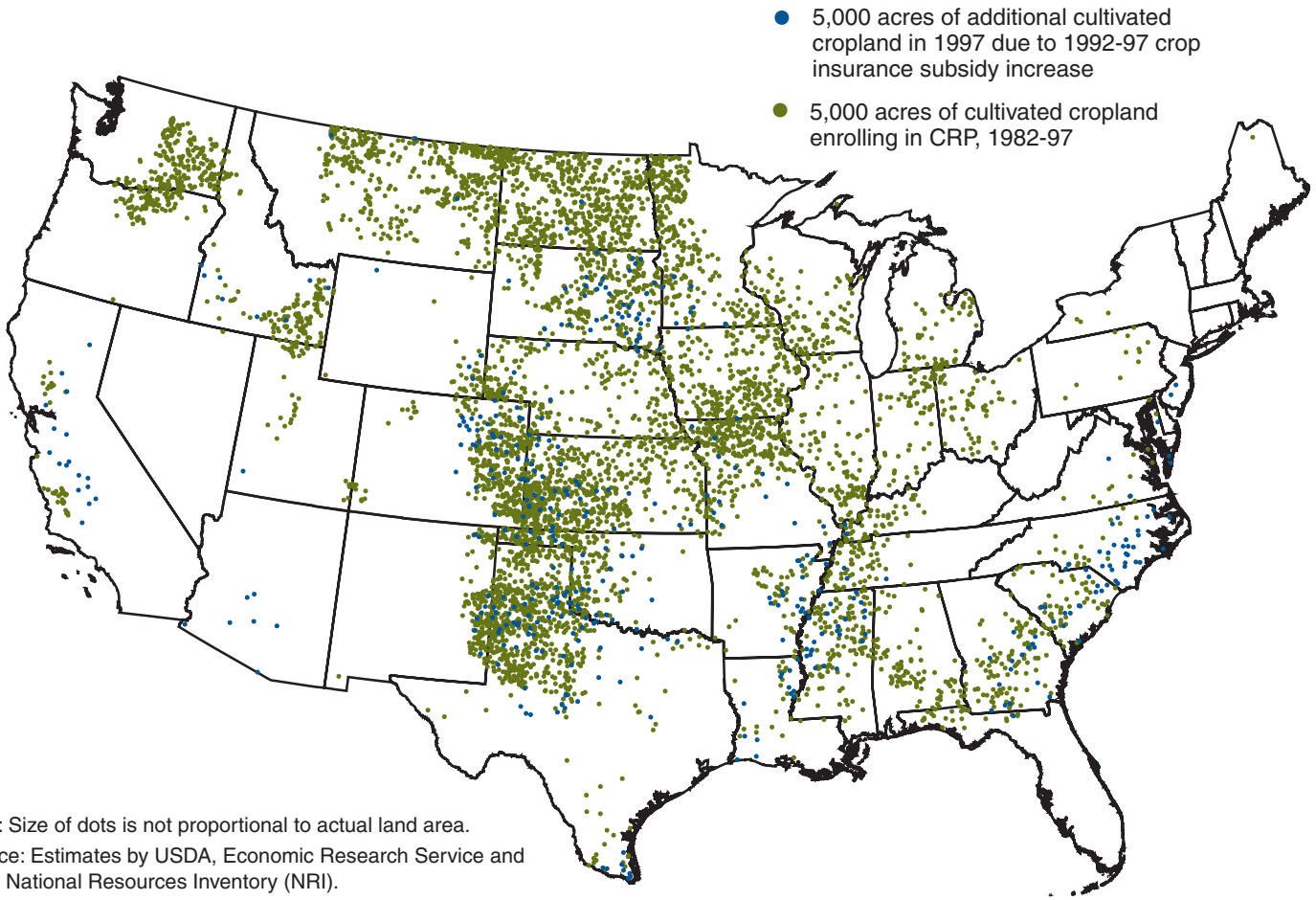
Source: Analysis by USDA, Economic Research Service, 1997 National Resources Inventory (NRI), and Soil Survey Geographic (SSURGO) data set.

lands in cultivation due to insurance subsidy changes are estimated to have higher potential phosphorus leaching and nitrogen loss to groundwater, surface water, and estuaries than do average cultivated croplands. In contrast, cropland enrolled in CRP tends to have below-average levels of potential nitrogen and phosphorus losses, possibly because the program tends to attract lands from arid regions where factors driving nutrient loss—rainfall runoff and rainfall-based soil erosion—are less intense. Once CRP acreage is removed from cultivation and the approved ground cover is established, nutrient transport from the land would be even less.

Acreage enrolled in CRP is located in different geographic areas than croplands brought into cultivation after the 1994 increase in crop insurance subsidies. Lands brought into or retained in cultivation due to the increased subsidies are clustered in certain regions (Prairie Gateway, Mississippi Portal, and Eastern Seaboard). The Heartland (Illinois, Indiana, Iowa, Missouri, and Ohio) has extensive cropland and a fair amount of land shifting in and out of cultivated crops. This region, however, has relatively few CRP acres (except for a cluster in Iowa and northern Missouri), and the ERS study showed virtually no increase in cultivated area in the region due to higher crop insurance subsidies. (The ERS study accounts for the fact that the level of participation in the crop insurance program was already high in the Heartland, with less potential for an increase than in regions with historically low participation levels.)

Land going into cultivation due to higher crop insurance subsidies was estimated to include areas with large populations of wildlife species classified in NatureServe's Natural Heritage database as imperiled. In particular, the cluster of land shifting into production in the Plains States coincides with an area of high CRP enrollment and high counts of imperiled bird species. Areas of subsidy-induced cultivation along the Mississippi River and Eastern Seaboard overlap with habitats of fish and mollusk species that are imperiled. ERS land-use models estimate that lands in

Acreage enrolled in CRP is located in different areas than croplands added as a result of the crop insurance subsidy increase



Note: Size of dots is not proportional to actual land area.
Source: Estimates by USDA, Economic Research Service and 1997 National Resources Inventory (NRI).

Bob Nichols, USDA/NRCS

cultivation due to the crop insurance subsidy increases are located in watersheds with higher counts of imperiled wildlife than average cropland. CRP lands lie in areas with higher counts of imperiled birds (protecting habitat, particularly for birds, is an express CRP objective). While ERS research suggests there are real changes in land use due to these policies, available data are insufficient to determine whether observed or predicted land-use changes have an impact (positive or negative) on imperiled wildlife populations.

Policies Have Environmental Consequences

Agricultural and conservation policies may affect farmers' land-use decisions directly or indirectly. These decisions will likely be associated with less economically productive land, and these lands are also likely to be more environmentally sensitive along several dimensions than average cropland.

Programs such as crop insurance can have unintended environmental consequences, but crop insurance only affects land use on a relatively small amount of acreage compared with land intentionally retired by CRP. Which lands are affected also depends on the incentive structure of each program. Further, the environmental effects vary regionally and by environmental medium (such as water, soil, or wildlife habitat).

The examples provided by the CRP and the Federal Crop Insurance Program illustrate these effects, but many other policies also induce land-use changes that have environmental effects. Identifying the economic and environmental features of the lands affected by policy incentives, and recognizing that the economic impact of policy-induced land-use changes could be less than previously anticipated—and the environmental impacts could be more than anticipated—could improve the formulation of future farm programs.

This article is drawn from . . .

Environmental Effects of Agricultural Land-Use Change: The Role of Economics and Policy, by Ruben Lubowski, Shawn Bucholtz, Roger Claassen, Michael Roberts, Joseph Cooper, Anna Gueorguieva, and Robert Johansson, ERR-25, USDA, Economic Research Service, September 2006, available at: www.ers.usda.gov/publications/err25/

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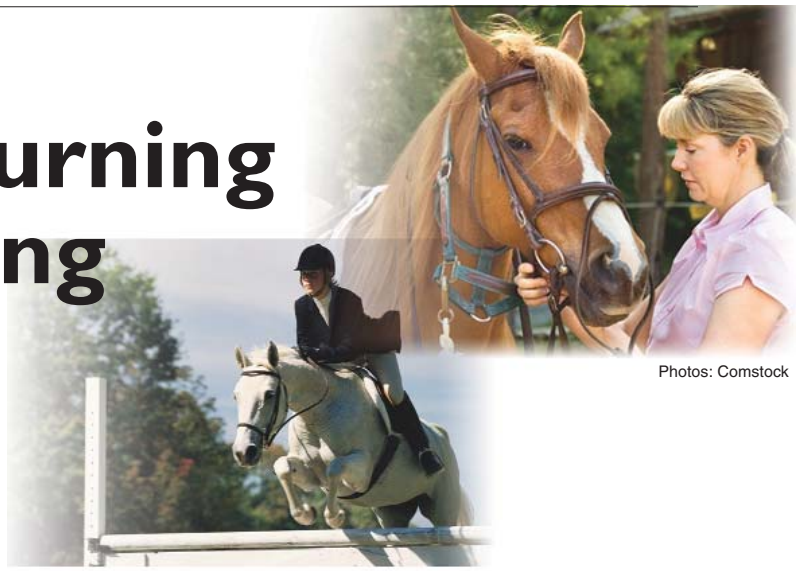
The ERS Briefing Room on Land Use, Value, and Management, www.ers.usda.gov/briefing/landuse/

ERS data on Major Land Uses, www.ers.usda.gov/data/majorlanduses/

More Women Turning to Horse Farming



Photos: Comstock

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Penni Korb, pkorb@ers.usda.gov

According to the 2002 Census of Agriculture, the number of farms operated primarily by women more than doubled since 1978, the first year that such information was recorded. Over the same period, the growth in numbers of horse farms far outpaced that of either beef cattle or other types of crop and livestock farms. The Census of Agriculture defines a horse farm as a USDA farm that generates 50 percent or more of its sales from horses. (A USDA farm is an operation that sells at least $1,000 of agricultural products in a year.) Riding stables and other equestrian recreational facilities could be counted in the Census if these operations sell horses and operate like a farm.

Equestrian sports driving increase in horse farms

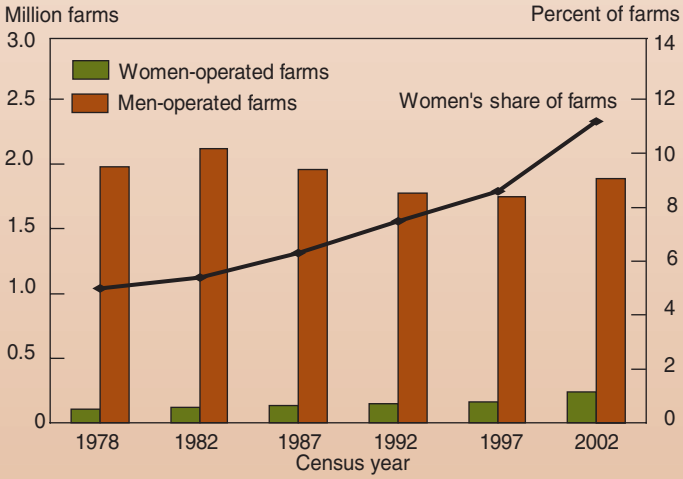
The increase in horse farms is largely attributed to the growth in participation in equestrian sports and recreation. While the horse racing industry has declined in popularity over the last 20 years, other horse sports—including show jumping and field hunting, driving, cutting, roping, eventing, dressage, and endurance—have expanded their appeal. Jockey Club Thoroughbred foal registration (an indicator of the number of race horses expected to race) dropped by about a quarter from the 1980s to the 1990s, while the U.S. horse and pony inventory as measured by the Census of Agriculture almost doubled during that time.

Horse farming is compatible with other goals

Given that the demand for horses is derived from the growth in participation in equestrian sports, it follows that horse farms will locate near major population centers. At the same time, horse farming may be particularly compatible as a peri-urban agricultural activity. Horse operations with pasture and sporting facilities provide open space, consistent with the land-use objectives of many suburban jurisdictions. In suburban Washington, DC, for example, the 93,000 acres in the Agricultural Reserve in Montgomery County, Maryland, is an area zoned to protect farmland. There, over the past 25 years, the number of horse farms more than doubled while the number of cattle farms fell by 50 percent, and total farm numbers declined by 15 percent.

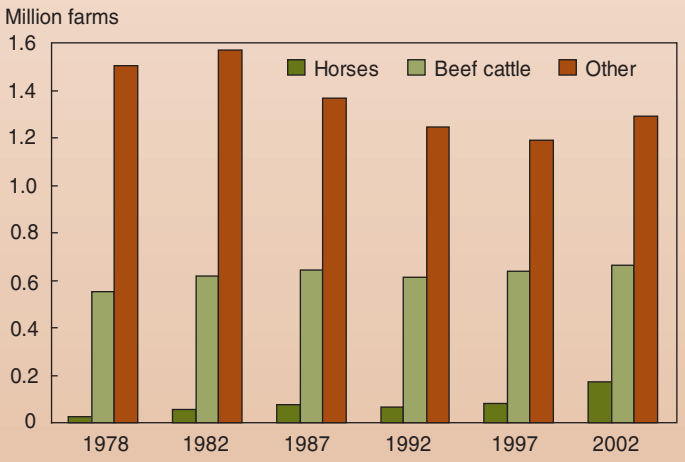
Also supportive of goals to preserve agriculture, horse farms provide income to other farms and to a variety of agriculture-related businesses. Like other livestock operations, most horse farms purchase feed and hay, and peripheral equipment like tractors, trucks, trailers, farm structures, and fencing. In addition, horse farms purchase equine equipment and obtain services from farriers and veterinarians.

Women are operating a larger share of U.S. farms



Source: Compiled by USDA Economic Research Service using data from the Census of Agriculture.

Horse farming is growing relative to other types of farming



Source: Compiled by USDA Economic Research Service using data from the Census of Agriculture Longitudinal file.

Share of horse farms operated by women has more than doubled since 1978

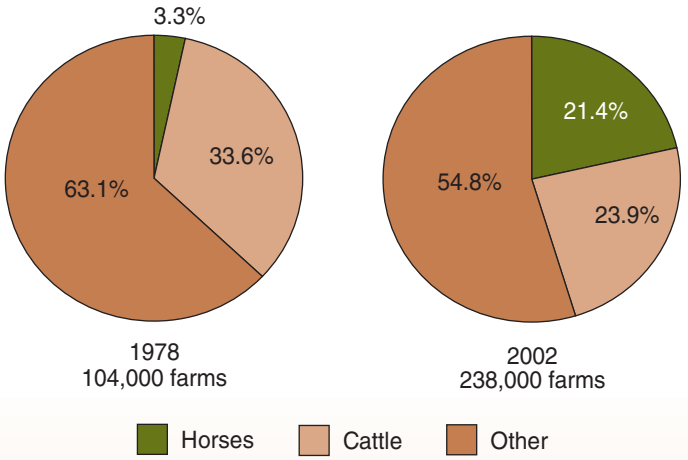
The significance of women in horse farming is far higher than in other types of farming. By 2002, women were the primary operators of almost a third of all U.S. horse farms. Women farmers, singly and jointly, operated over 65 percent of all horse farms, compared with 37 percent of all farms. Of all the farms operated primarily by women, one-fifth were horse farms.

As to why women appear to have been disproportionately attracted to horse farming, answers are conjectural. It has always been the case that women operators were more likely than men to be involved in livestock farms and also that women operated on smaller acreages than farms operated by men, so women's increasing presence in horse farming is consistent with that history.

Mid-Atlantic region has longstanding equestrian roots

Clues about the dynamics of the horse industry may be revealed through a closer look at the mid-Atlantic region, where equestrian roots date to colonial times (jousting is the State sport of Maryland). The presence of women-operated horse farms is particularly extensive in this region, where, in 2002, women operated 48 percent of all horse farms. Women as primary and joint owners in this area operate over half of all horse farms; in some counties, their total involvement reaches nearly 80 percent. Why so many women? One hypothesis is that higher income women (and their households) are present in larger numbers in metropolitan areas (of which the mid-Atlantic region has several), and these women may be better positioned financially to enter the horse industry. Census data lend some support to this idea: nationwide, women who are primary horse farm operators were more likely to work off the farm than other women farm operators in 2002; however, they were still less likely to work off the farm than men who are horse farm operators.

U.S. farms with women as primary operators



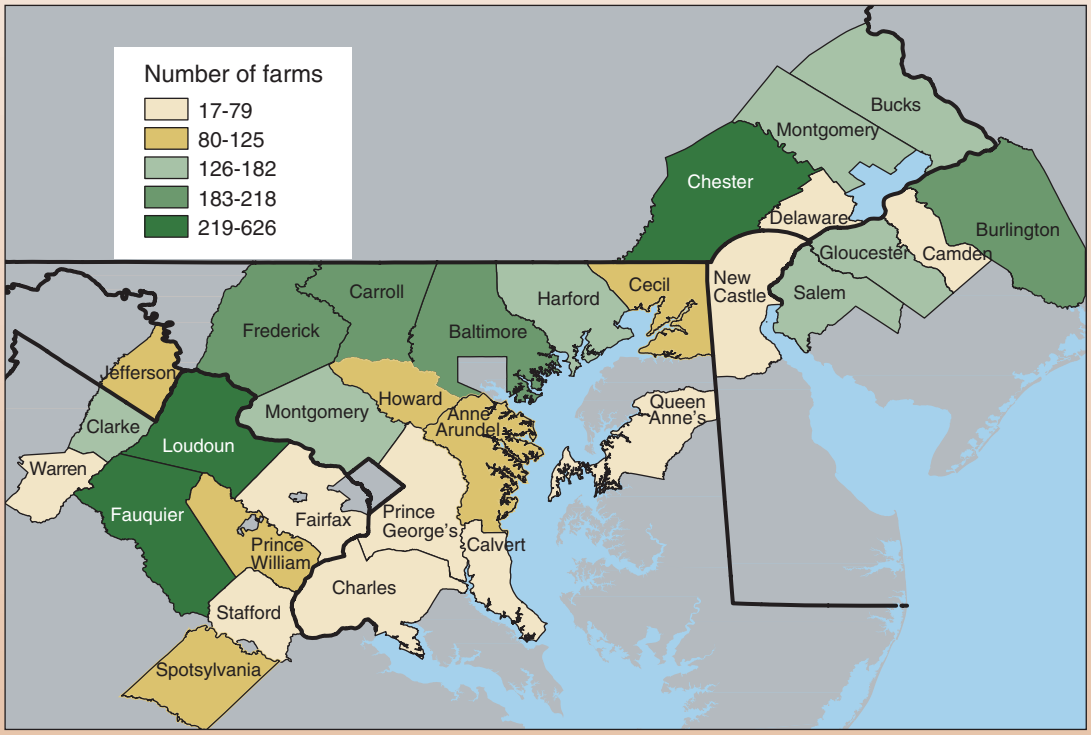
Source: Compiled by USDA, Economic Research Service using data from the 2002 Census of Agriculture.

There may be lessons to learn from the growth in women-owned horse farms that could enhance strategies to encourage women to enter agriculture. Inquiry could be made as to whether it is the scale of the operation that is particularly attractive to women, or the positive business outlook, or the proximity to off-farm employment. It might, of course, just be the horses.

For more information . . .

Structural and Financial Characteristics of U.S. Family Farms: 2004 Family Farm Report, edited by David E. Banker and James M. MacDonald, AIB-797, USDA, Economic Research Service, March 2005, available at: www.ers.usda.gov/publications/aib797/

Mid-Atlantic horse farms with women as primary and joint operators, 2002



Source: Compiled by USDA, Economic Research Service using data from the 2002 Census of Agriculture.

STATISTICS

Data may have been updated since publication. For the most current information, see www.ers.usda.gov/publications/agoutlook/aotables/.

Farm, Rural, and Natural Resource Indicators

	2000	2001	2002	2003	2004	2005	Annual percent change 2002-03	2003-04	2004-05
Cash receipts ($ billion)	192.1	200.1	195.0	216.6	241.2	239.0 f	11.1	11.4	-0.9
Crops	92.5	93.3	101.0	111.0	117.8	114.1 f	9.9	6.1	-3.1
Livestock	99.6	106.7	94.0	105.6	123.5	124.9 f	12.3	17.0	1.1
Direct government payments ($ billion)	22.9	20.7	11.2	17.2	13.3	23.0 f	53.6	-22.7	72.9
Gross cash income ($ billion)	228.7	235.6	221.0	249.5	271.7	279.5 f	12.9	8.9	2.9
Net cash income ($ billion)	56.7	60.1	49.5	71.6	85.5	82.8 f	44.6	19.4	-3.2
Net value added ($ billion)	91.9	95.0	78.6	101.2	125.9	119.3 f	28.8	24.4	-5.2
Farm equity ($ billion)	1,025.6	1,070.2	1,110.7	1,180.8	1,293.9	1,376.9 f	6.3	9.6	6.4
Farm debt-asset ratio	14.8	14.8	14.8	14.4	13.8	13.4 f	-2.7	-4.2	-2.9
Farm household income ($/farm household)	61,947	64,117	65,761	68,597	81,480 p	83,461 f	4.3	18.8	2.4
Farm household income relative to average U.S. household income (%)	108.6	110.2	113.7	116.1	134.6 p	na	2.1	15.9	na
Nonmetro-metro difference in poverty rate (% points)	2.6	3.1	2.6	2.1	na	na	-19.2	na	na
Cropland harvested (million acres)	314	311	307	315	312	312 p	2.6	-1.0	0.0
USDA conservation program expenditures ($ bil.)[1]	3.3	3.7	4.2	4.3	5.1	na	2.4	18.6	na

Food and Fiber Sector Indicators

U.S. gross domestic product ($ billion)	9,817	10,128	10,470	10,971	11,734	12,487	4.8	7.0	6.4
Share of GDP in agriculture and related industries (%)[2]	4.8	4.8	4.8	4.8	4.8	na	0.0	0.0	na
Share of GDP in agriculture (%)[2]	0.7	0.7	0.7	0.8	1.0	na	11.1	19.2	na
Total agricultural imports ($ billion)[1]	38.9	39.0	41.0	45.7	52.7	57.7	11.5	15.3	9.5
Total agricultural exports ($ billion)[1]	50.7	52.7	53.3	56.2	62.4	62.4	5.4	11.0	0.0
Export share of the volume of U.S. agricultural production (%)	17.6	17.6	16.7	17.9	16.3	na	7.2	-8.9	na
CPI for food (1982-84=100)	167.9	173.1	176.2	180.0	186.2	190.7	2.2	3.4	2.4
Share of U.S. disposable income spent on food (%)	9.8	9.8	9.5	9.4	9.5	na	-1.1	1.1	na
Share of total food expenditures for at-home consumption (%)	51.7	51.7	50.8	50.3	49.7	na	-1.0	-1.2	na
Farm-to-retail price spread (1982-84=100)	210.3	215.4	221.2	225.6	232.1	238.3	2.0	2.9	2.7
Total USDA food and nutrition assistance spending ($ billion)[1]	32.6	34.2	38.0	41.8	46.2	50.9	10.0	10.5	10.2

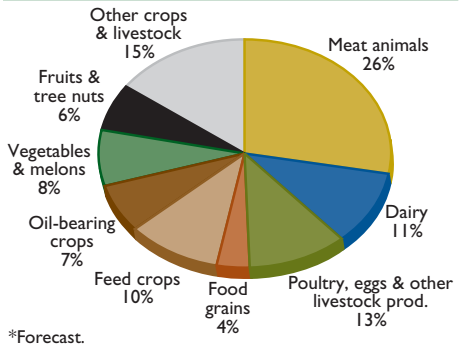
f = Forecast. p = Preliminary. na = Not available. All dollar amounts are in current dollars.

[1] Based on October-September fiscal years ending with year indicated.

[2] The methodology for computing these measures has changed. These statistics are not comparable to previously published statistics.

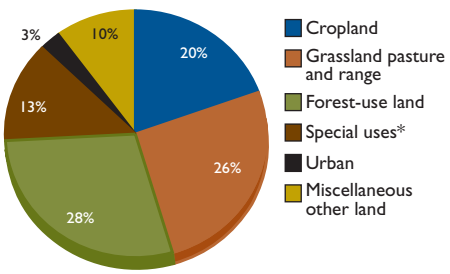
Sources and computation methodology are available at: www.ers.usda.gov/amberwaves/aggdp.htm

Cash receipts from farming, 2006*
Total receipts: $231.7 billion



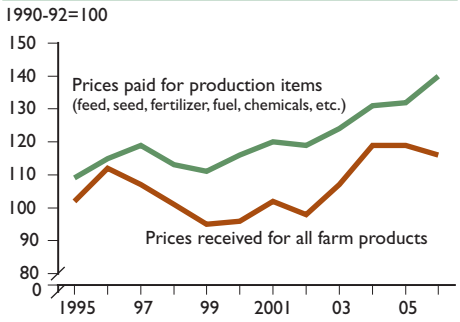
*Forecast.

Major uses of U.S. land, 2002
Total: 2,264 million acres



*Rural transportation; rural parks and wildlife; defense and industrial uses; and farmstead uses.

Prices paid and received by farmers



*2006 data for January-June.

For more information, see www.ers.usda.gov/amberwaves/

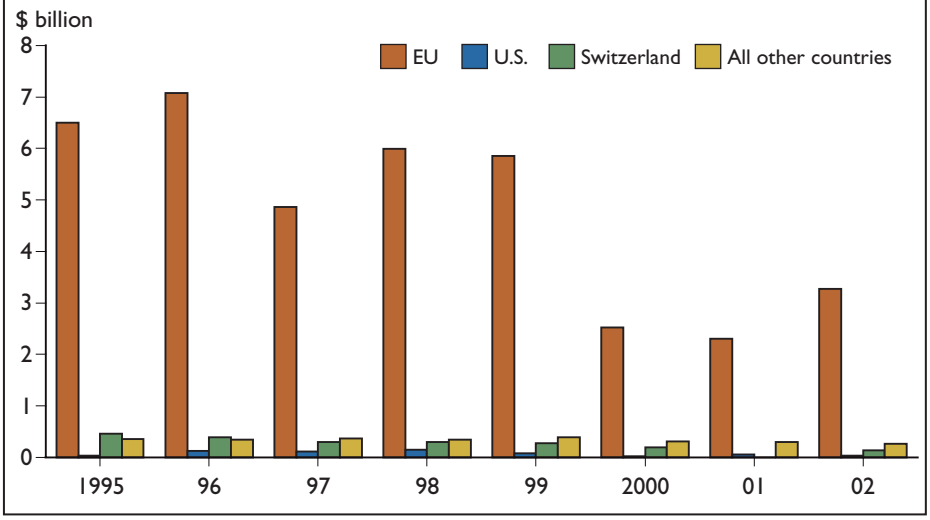
Behind the Data

WTO Trade Policy Commitments Database

Under the Agreement on Agriculture, World Trade Organization (WTO) members agreed to rules governing the type and level of agricultural policies they may use. These rules fall under three areas: domestic support (price support and producer subsidies), export subsidies, and market access (tariffs and tariff-rate quotas). Countries agreed to limit domestic policies considered to be trade distorting, reduce their use of export subsidies, and decrease tariffs. They also agreed to allow for a minimal level of imports of some products through tariff-rate quotas—two-tiered tariffs with a lower tariff levied on imports up to a certain quantity.

WTO member countries are required to report on their compliance with commitments under the Agreement on Agriculture. The ERS WTO Trade Policy Commitments Database assembles WTO member notifications and displays the information in a user-friendly format with various options for viewing and downloading data. ERS has calculated the U.S. dollar equivalent of WTO member expenditures on domestic support and export subsidies, and aggregated detailed tariff data by commodity category, facilitating comparisons of data across member countries. The data provide a profile of countries' agricultural support and protection.

EU dominates WTO members' spending on export subsidies



Domestic support data in the ERS database includes annual levels of support by WTO members, how the countries provide it, and how they spend it. In 2002, the European Union (EU), the United States, and Japan accounted for 93 percent of all domestic support outlays reported to the WTO and 94 percent of the most trade-distorting support.

Export subsidy data include expenditures on export subsidies and the quantity of subsidized exports, by commodity. Since 1995, worldwide use of export subsidies reported to the WTO has declined by half, aided by a strong U.S. dollar and high world market prices for many agricultural products in 2000-02, as well as by policy reforms that reduced the need for export subsidies. Over the same period, the EU has been the largest user of export subsidies, accounting for 90-95 percent of the total reported by all WTO members.

Tariff protection data include both *bound* (the maximum tariff levels countries can charge) and *applied* (lower tariffs that some countries actually charge on imports) tariff rates, as well as in- and over-quota tariffs for products with tariff-rate quotas. Against a high global average rate of 63 percent for WTO bound tariffs, bound tariff levels vary considerably across regions and among products.

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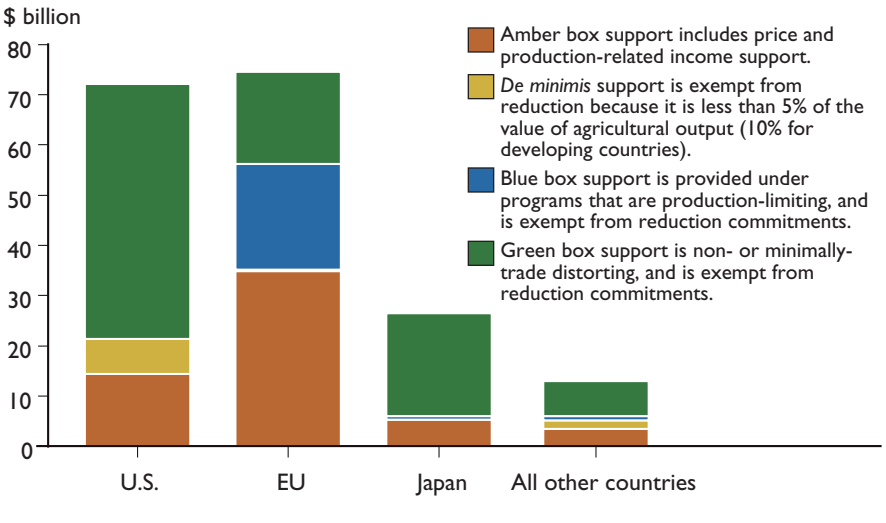
For more information . . .

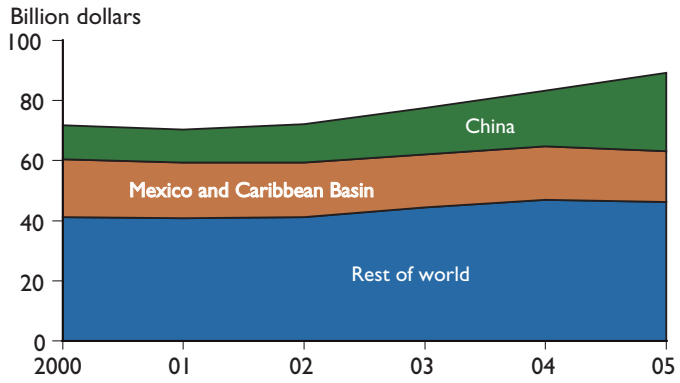
The Agricultural WTO Trade Policy Commitments Database, available at www.ers.usda.gov/db/wto/.

Three countries dominate 2001 domestic support spending



Markets and Trade

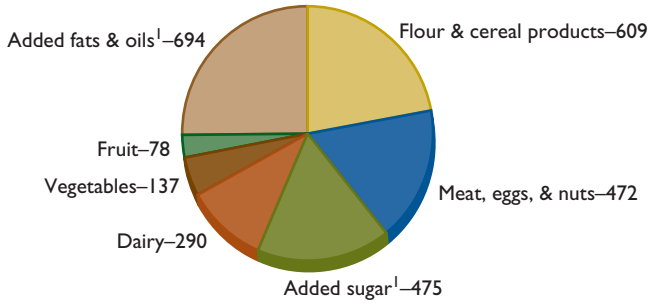
U.S. textile and apparel imports, by source



Source: U.S. Department of Commerce, Office of Textiles and Apparel (OTEXA) trade database.

Diet and Health

Added fats and oils provide more calories per day for the average American than any other food group

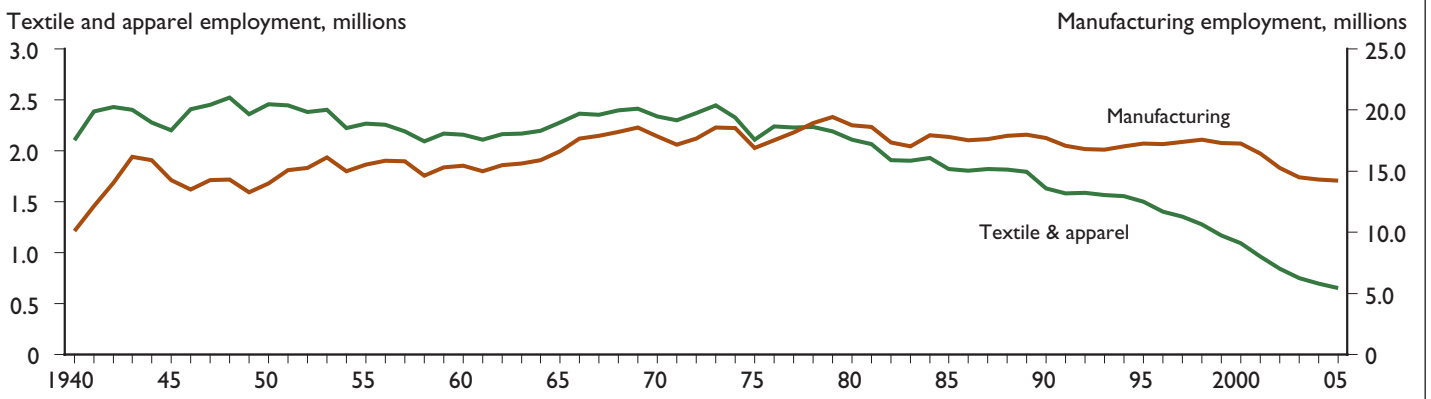


[1]Added fats and oils and added sugars are put into foods during processing or preparation. They do not include naturally occurring fats and sugars in food (e.g., fats in meat or sugars in fruits).

Source: USDA, Economic Research Service, Food Guide Pyramid Servings data, 2004 data.

Rural America

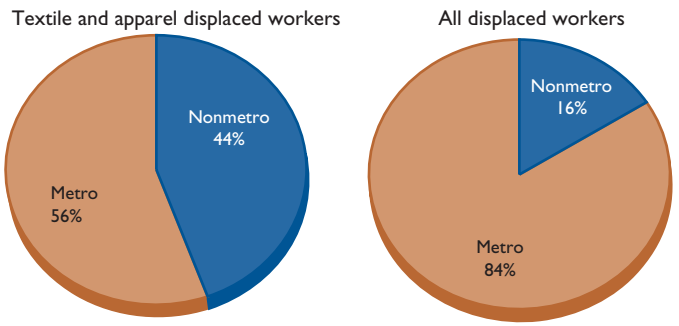
Textile and apparel jobs have declined more than all manufacturing jobs



Source: Calculations by USDA, Economic Research Service using Bureau of Labor Statistics, Current Employment Statistics survey.

Rural America

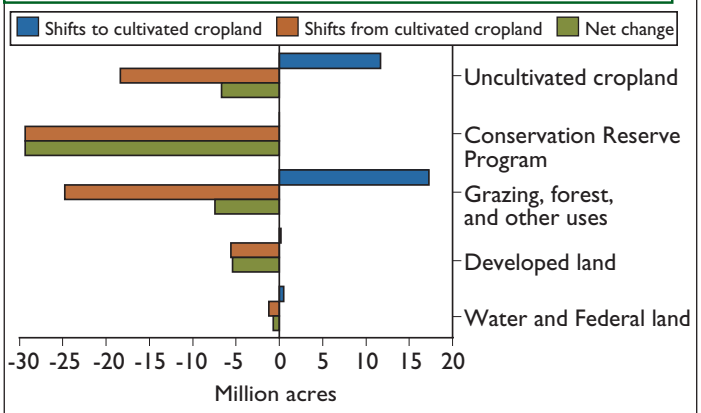
A much larger share of textile and apparel displaced workers lived in nonmetro areas, compared with all displaced workers, 1997-2003



Source: Estimates by USDA, Economic Research Service from 2000, 2002, and 2004 Displaced Worker Survey Supplements of the Current Population Survey.

Resources and Environment

Shifts to and from cultivated cropland, 1982-97



Source: USDA, Natural Resources Conservation Service, 1997 National Resources Inventory.

On The Map

Participation in USDA's Food Stamp Program varies by State

An average of 25.6 million people, or 8.7 percent of the U.S. population, received food stamps each month during fiscal year 2005, an increase from 8.1 percent in 2004. Hurricane-ravaged Louisiana had the largest share of its residents receiving food stamps in 2005—17.9 percent, displacing the District of Columbia, which had led the Nation in participation during 2001-04. Participation shares increased in most States from 2004, despite small declines in Rhode Island, Idaho, Nevada, and Wyoming. Average participation shares were lowest in New Hampshire at 4.0 percent, followed by New Jersey, Wyoming, and Nevada.

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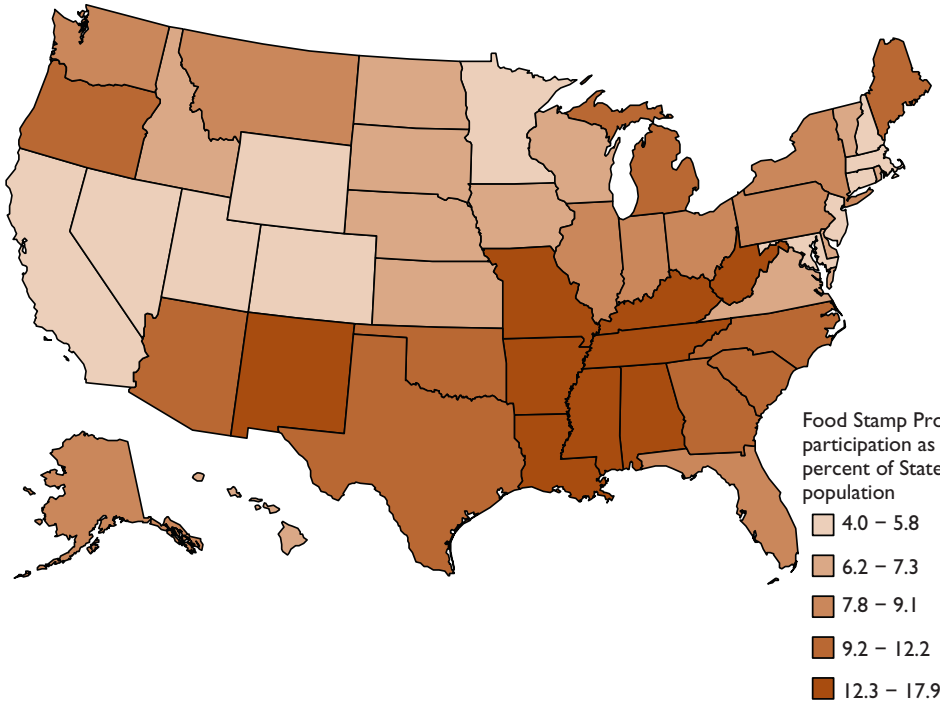
Average monthly Food Stamp Program participation, 2005



Source: Prepared by USDA, Economic Research Service using data from USDA's Food and Nutrition Service and U.S. Census Bureau.

In the Long Run

Share of income spent on food continues to decline

With incomes climbing at a faster rate than expenditures for food, Americans spent 9.9 percent of their disposable personal income on food in 2005, down from 23.4 percent in 1929. This decline is even more striking considering the labor and technology that go into the multitude of processed foods on today's supermarket shelves. In addition, almost half of our food dollars are now spent at restaurants and other eating places, while in 1929, food away from home accounted for 17 percent of food expenditures. Despite this jump in away-from-home eating, the share of income spent on food away from home has remained at around 4 percent.

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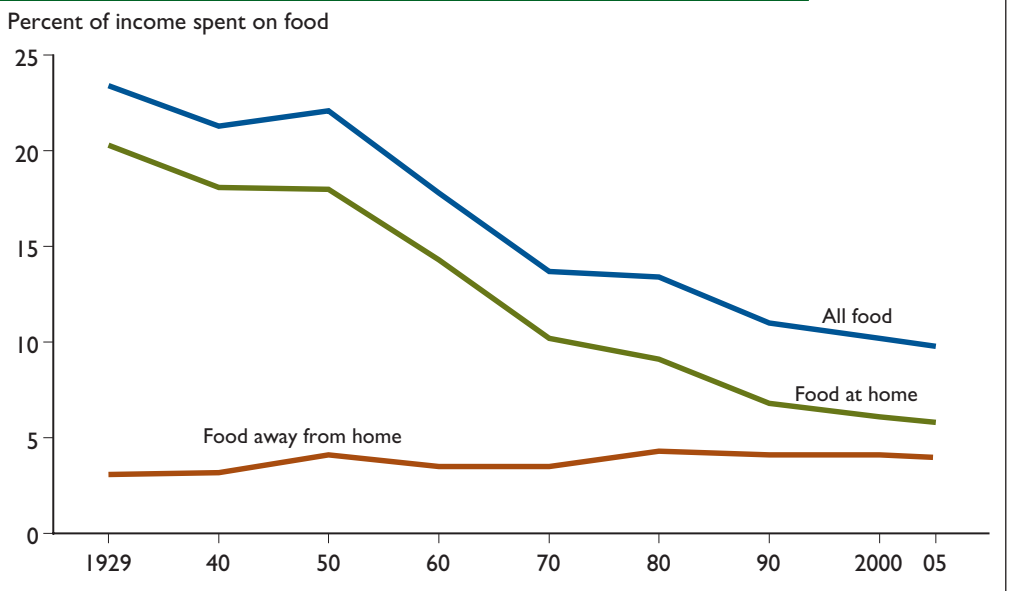
Food is a good buy for U.S. consumers



Source: USDA, Economic Research Service, www.ers.usda.gov/briefing/cpifoodandexpenditures/data/table7.htm

Rural America At A Glance . . .

Concise Summaries of Selected Issues

By USDA's Economic Research Service

Rural America At A Glance
This annual report covers current social and economic indicators for rural America, reporting on trends in employment and earnings, population and migration, poverty and income, and Federal program funding. Key indicators are provided, for use by public and private decisionmakers and others, in efforts to enhance the economic opportunities and quality of life for rural people and their communities.
September 2005

Rural Poverty At A Glance
Information on poverty trends and demographic characteristics of the rural poor. While metro and nonmetro areas have shared similar patterns of reductions and increases in poverty rates over time, the nonmetro poverty rate consistently remains higher than the metro poverty rate. Large metro-nonmetro gaps also exist when poverty is analyzed by race, ethnicity, age, and family structure.
July 2004

Rural Children At A Glance
Demographic, social, and economic characteristics of rural children in families. Although rural child poverty rates declined in the 1990s, they remain higher than the rates for urban children (21 percent vs. 18 percent). In 2003, 2.7 million rural children were poor, representing 36 percent of the rural poor. Child poverty is heavily concentrated in the South.
April 2005

Rural Education At A Glance
Information from the 2000 Census and other Federal sources on the education characteristics of rural workers and counties. The report finds that racial educational differences remain large and that adult education levels remain far below the national average in many rural counties, particularly in the South. Counties with more educated populations appear to have performed better economically in the 1990s and have lower poverty rates.
January 2004

Rural Transportation At A Glance
The effects of deregulation, devolution of Federal transportation responsibilities to the States, increased Federal funding, and heightened security concerns are discussed in the context of each mode of transportation. While 93 percent of rural households have access to a vehicle, high proportions of carless rural households are clustered in the South, Appalachia, the Southwest, and Alaska.
January 2005

Rural Hispanics At A Glance
Hispanic population growth has helped to stem decades of population decline in many rural areas. The pamphlet draws on the latest information from the 2000 Census and other Federal data sources to highlight the growth of the Hispanic population in the U.S. and its geographic dispersion to the Midwest and Southeast. The pamphlet also summarizes demographic characteristics and the most recent indicators of social and economic conditions for Hispanics.
December 2005

www.ers.usda.gov/emphases/rural/ataglance.htm